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IN THE

Supreme Court of the United States

OCTOBER TERM, 1997

STEPHEN L. GOEWEY, by his next friend, JULIE A. GOEWEY, AND KEVIN D. GOEWEY

Petitioners,

v.

FLUOR DANIEL, INC., FD SERVICES, INC., AND UNITED STATES OF AMERICA

Respondents.

ON PETITION FOR A WRIT OF CERTIORARI
TO THE UNITED STATES COURT OF APPEALS
FOR THE FOURTH CIRCUIT

PETITION FOR A WRIT OF CERTIORARI

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QUESTIONS PRESENTED

1. What is the standard for appellate review for trial court decisions excluding expert testimony under *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993) (a question also presented in *General Electric Co. v. Joiner*, No. 96-188 (*cert. granted* Mar. 17, 1997)?

2. Did the Fourth Circuit in this case err, under *Daubert*, by deciding upon the correctness of the plaintiffs' experts' conclusions rather than upon whether the experts' testimony was derived from a scientifically valid methodology; by holding that plaintiffs could not combine the testimonies of more than one expert to satisfy the elements of their claim of causation; and by denying plaintiffs the right to plead inconsistent theories of liability?

PARTIES TO THE PROCEEDING

The petitioners in this case are Stephen L. Goewey, by his next friend, and Julie A. Goewey and Kevin D. Goewey, both as individuals and as parents of Stephen L. Goewey.

The respondents are the United States of America, Fluor Daniel, Inc., and FD Services, Inc.

In addition, Velsicol Chemical Corporation was originally a defendant in this lawsuit. Plaintiffs reached a settlement with Velsicol, and Velsicol did not participate in, and was not otherwise a party to, the proceeding in the Court of Appeals.

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PETITION FOR A WRIT OF CERTIORARI

Stephen L. Goewey, Julie A. Goewey, and Kevin D. Goewey respectfully petition for a writ of certiorari to review the judgment of the United States Court of Appeals for the Fourth Circuit in this case.

OPINIONS BELOW

The decision of the Court of Appeals denying rehearing (App. 1a)[1] is unreported. The decision of the Court of Appeals on the merits (App. 3a-16a) is unpublished. It is noted at 106 F.3d 390 and reported in full at 1997 U.S. App. LEXIS 1528. The decision of the District Court (App. 17a-46a) is reported at 886 F. Supp. 1268.

JURISDICTION

On April 1, 1997, the Court of Appeals denied the petition for rehearing and suggestion for rehearing en banc. App. 1a. The jurisdiction of this Court is invoked under 28 U.S.C. § 1254(1).

CONSTITUTIONAL AND STATUTORY PROVISIONS INVOLVED

Federal Rule of Evidence 702 provides in relevant part:

> If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise.

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[1] References to the Appendix to the Petition for Writ of Certiorari are styled "App. _a." References to the Appendix in the Court of Appeals are styled "JA _."

STATEMENT OF THE CASE

This scientific evidence case involves a toxic tort claim against respondents Fluor Daniel Corporation and its associated company, FD Services, Incorporated (hereinafter collectively "FD"),[2] by Stephen Goewey (now age eight), his mother, Julie Goewey, and his father, Kevin Goewey. On September 12, 1989 — the date of his first birthday — Stephen was exposed to tar, solvents, and pesticides while playing in the backyard of his Navy housing unit. Until that time, Stephen was a healthy, well-developed toddler. Soon afterwards, he displayed early signs of exposure to such harmful substances, including irritability and diarrhea. He began falling, and his motor coordination worsened. Ultimately, he suffered from severe neurological deterioration and central nervous system damage.

1. Background. Stephen was born September 12, 1988, following a full-term pregnancy and a natural birth with no complications. His Apgar scores were 9/9. JA 1612. Family photos and videos taken during his first year show a child developing normally in every respect. Indeed, he began walking at only eight-and-one-half months of age. JA 326. Stephen lived with his parents and two older brothers, Daniel and Nigel, in Navy Housing at 73 Lafayette, Men Riv Housing Unit, Goose Creek, South Carolina.

During the Goewey's occupation of 73 Lafayette, the Navy was party to a maintenance and service contract with respondent FD. Water periodically leaked from outside into Stephen's bedroom where he played. JA 634-35. Responding to the Goewey's complaints, on August 25, 1989 the Navy issued a

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[2] The United States was originally named as a defendant in this action; the district court dismissed the United States from the case and the Court of Appeals affirmed. Petitioners do not seek review of this decision.

In addition, Velsicol Chemical Corporation was originally a party to this lawsuit. Plaintiffs reached a settlement with Velsicol, JA 12, no. 59, and Velsicol did not participate in the Court of Appeals.

work order to FD instructing "WATERPROOF ABOVE & BELOW GRND FOUNDATION LEAK." JA 1485-87.

The FD employee who filled the work order testified that he dug a trench down to the foundation of the house and applied a tar substance used for roof coating (Lowe's asphalt fibered roof coating) to the exterior of the foundation. The sealant stretched from approximately three feet below ground level to some distance above ground level. App. 5a. The employee at one point indicated that the tar was six (6) inches above ground level (JA 627) and at another point said that it could have been as much as eighteen (18) inches above ground level. JA 625-27.

On September 5, 1989, another FD employee came to the premises and added more tar so that there would be a neat line at the top. JA 843-45. This required bringing "the tar up another layer of brick." JA 837.

On September 12, 1989, Stephen and his brothers were playing in the fenced-in yard while Julie Goewey looked on. Hearing the phone ring, she went inside to answer it. When she returned she found Stephen immersed in a puddle of tar with tar all over his body. She picked him up and brought him inside. She tried to remove the tar with running water but could not. JA 642-43.

Daniel Goewey waived down Security Officer Newlan Wilson, who called for an ambulance. Both Officer Wilson and Julie Goewey observed Stephen's putting his tar-covered hands in his mouth. JA 686-87. Officer Wilson rode with Julie and Stephen in the ambulance to the emergency room and tried to prevent Stephen from continuing to put his hands in his mouth. JA 644-45, 686-87.

At the emergency room, Stephen was found to have 80 to 85% of his body covered with tar. He was placed in a mineral bath to remove the tar. Evidence indicates that the mineral oil would cause Stephen's body more quickly to absorb the solvents within the tar. JA 384. Most, but not all, of the tar was removed

in this process.[3] Stephen was then released to his mother's care and sent home.

FD employees returned to the Goewey home the next day. The tar was tacky to the touch, indicating that solvents were still present in it. JA 878. One employee stated that whoever originally applied the tar "went a little higher than what we normally go with putting tar on the backside of [a] house." JA 895. The FD workers dug out the area, cleaned the tar off the wall with gasoline, and put hydraulic cement on the wall. JA 896.

A couple of days later an FD employee returned to the Goewey residence and noticed ten to fifteen "globs" of tar spread out over an area of ten feet in the yard. JA 623. He shoveled up approximately a bucket full of this "granular" tar. JA 614.

The Navy was sufficiently concerned about the "tar" incident that it decided to investigate the site. An industrial hygienist working for the Navy performed an environmental survey of 73 Lafayette and found evidence of chlordane and aldrin, two pesticides. JA 589-90. However, a sample of tar obtained from FD was apparently misplaced by Navy personnel. JA 667-68, 751, 757. It was never made available to plaintiffs for testing.[4]

2. The Evidence of Injury. Stephen began to change soon after his exposure to the tar. A babysitter recalled that he cried on-and-off each day for three days for no apparent reason. JA 806-09, 810. She described him as being "real cranky" and not "his normal self" during this period. JA 806, 809, 810, 812. These observations were consistent with evidence that exposure to toxic substances could trigger a "pins and needles" feeling,

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[3] Indeed, the next day, a babysitter observed that he still had tar on his eyebrows, fingernails and toenails, and teeth. JA 804-05.

[4] When plaintiffs moved on December 16, 1994 to obtain a sample of tar from 73 Lafayette after they learned on October 18, 1994 that some tar might remain in the ground, the district court denied the motion, noting that the discovery cut-off had passed and that any remaining tar would have been over 5 years old. App. 41a-43a.

irritability, and diarrhea. JA 253, 1629. According to his mother, Stephen was "irritable, wasn't happy; he was fussy, he stopped walking; diarrhea." JA 629. He fell while walking in the house and hit his head just above his eye on a coffee table. JA 658-59.

Another babysitter noticed that, in November 1989, Stephen began falling frequently. JA 689. She also noticed that he was starry-eyed and drooling. JA 690. About mid-November, she observed that Stephen's body movements were like those of a "rag doll." JA 693. Stephen was "floppy" and "clumsy" and did not seem to have very much strength. JA 694, 696, 698. By the second week of December, Stephen's falling was of such concern to the babysitter that she began putting him in a high chair and play pen. JA 691-93, 697.

Stephen's aunt, Ms. Tammy Prevatte, observed him tripping and falling at Thanksgiving 1989. JA 793, 794. She remembered that, during a visit in January 1990, Stephen was "fussy and real restless"; he was still exhibiting episodes of staring, resembling a "trance"; his eyes were "flickering" and he failed to respond to voice commands. JA 796-97.

On December 12, 1989, Julie Goewey took Stephen to the Family Practice Clinic in Charleston for upper respiratory problems and flu-like symptoms. JA 342. The next documented visit was January 19, 1990, at the emergency room with a history of "Stephen . . . falling a little more frequently than usual." JA 344. Dr. Parker concluded that there "may have been a little bit of lag as far as his balance was concerned," JA 349, even though Stephen had begun to walk precociously at eight and one-half months. JA 326.

On January 23, 1990, Julie Goewey again brought Stephen to the Family Practice Clinic because she was concerned about his apparent lack of coordination. Dr. Parker administered the Denver Development Screening Test. JA 350. The results indicated some mild delay in language skills and some apparent delay in gross motor skills including his walking. JA 350-51. Dr. Parker believed that there could be a toxic etiology, but

considered only copper or lead. JA 355.

On February 12, 1990, Julie returned Stephen to the clinic because his condition had worsened. Stephen was having more difficulty standing and walking. JA 354. He was admitted to Charleston Navy Hospital and was treated by Dr. Sterns, a neurologist. JA 355-56. Dr. Sterns conducted numerous tests: MRIs of the brain and cervical and thoracic areas of the spine; a lumbar puncture; tests on cerebral spinal fluid; and immunological and liver function tests. All were negative, except for a slight elevation in long chain fatty acids. JA 355.

Stephen was transferred to Bethesda Naval Hospital on Feb. 18, 1990, under the care of Dr. Judith F. Morales, a Navy pediatric neurologist. Julie Goewey informed Dr. Morales of the "tar" incident. Dr. Morales consulted Bethesda's occupational therapy section, which advised that tar was not absorbable and therefore would not cause the problems seen with Stephen. JA 209. More tests were run covering a wide range of diseases of the spinal cord or brain, as well as work-ups with respect to genetics and metabolic and mitochondrial diseases, all of which came back negative. JA 210-12.

Dr. Morales transferred Stephen to Duke University Medical Center to see Dr. DeLong, the chief of pediatric neurology at Duke and an associate professor of pediatrics. JA 434. A skin biopsy was negative. JA 437. Enzyme studies were conducted for genetic disorders which were all negative. JA 437. Tests for mitochondrial diseases were also negative. Dr. DeLong, having been advised of the "tar" incident, looked at several organic compounds, including chlordane and toluene, but was unable to make a specific diagnosis. JA 440.

On July 12, 1990, Stephen was transferred to Dr. Ernest Barbosa, a pediatric neurologist at the Medical University of South Carolina. JA 178. Dr. Barbosa ruled out the possibility of Krabbes, Leigh's, and mitochondrial disorders. JA 180-81. He concluded that Stephen was suffering from a toxic insult, an unlikely genetic condition, or a disease of unknown etiology. JA 191. A blood test performed at the Medical University of South

Carolina indicated the presence of chlordane, a pesticide. JA 483, 497.

On September 11, 1990, the Goeweys were referred to Dr. Allan Lieberman, a board certified pediatrician who served for five years as medical director of the Vince Mosley Diagnostic and Evaluation Clinic of Charleston, South Carolina, which is a center for the diagnosis of neurologically handicapped children. App. 12a. He was also medical director of the Coastal Rehabilitation Center in Charleston, a state institution which serves neurologically handicapped children and adults. *Id.* He served as Chief of Pediatrics at the United States Naval Hospital in Charleston, South Carolina and as a lecturer in applied neuroanatomy at the Medical University of South Carolina. *Id.* In addition to being board certified in pediatrics, he is a Fellow, American Academy of Environmental Medicine, and a Diplomat, American Board of Environmental Medicine. *Id.*

Dr. Lieberman's differential diagnosis was neurotoxicity as a result of exposure to the tar and organic chlorines, such as pesticides. JA 495. On January 24, 1991, Dr. Lieberman noted in Stephen's records, "[C]hild continues to show progress — motor — can sit up a little more but with curved [back]. More hand use, language — says ball & momma. Social — child is relating more, more curious, explores environment, more playful." JA 498. On a May 17, 1991 visit, Dr. Lieberman wrote: "[M]otor development better; fine motor better, receptive languages good, expressive language is nonverbal. *This cannot be a progressive neurological disorder. Child is progressively getting better.* Px: overt improvement and overall development." JA 499 (emphasis added).

On July 8, 1993, Stephen saw Dr. Lorne Garretson, a board-certified medical toxicologist who is co-director of the Georgia Poison Control Center. JA 236. Dr. Garretson noted that exposure to a chemical known as Triorthocresylphosphate (TOCP) produces symptoms such as those experienced by Stephen. JA 253. Dr. Garretson consulted with Dr. Mohamed Abou-Donia, an authority at Duke University on delayed

neurotoxicity, and asked him to test Stephen for exposure to TOCP.

Dr. Abou-Donia conducted a blind study *in vitro* for evidence of phosphorylated nerves — a sign of exposure to TOCP. JA 377-78. Dr. Abou-Donia used a technique known as monoclonal antibody testing and explained that the test was, with a reasonable degree of medical certainty, trustworthy, and very reliable and useable for diagnosis of this type of neurodegenerative disorder. JA 267-68, 270. The study was very strongly positive for Stephen but negative for others — including unrelated children and adults and the Goewey parents and siblings. JA 267-68, 270. Hence, Dr. Garretson concluded that there was very good supporting evidence that Stephen had suffered a TOCP injury. JA 257.

In 1994, Dr. Barbosa referred Stephen for neuropsychological evaluation to Dr. Richard Berg. Dr. Berg administered various tests to Stephen and ruled out the possibility of congenital mental retardation. JA 1612-22.

3. The Scientific Evidence. Plaintiffs brought suit in the United States District Court for the District of South Carolina against the United States, FD, and Velsicol Corporation. The district court had subject-matter jurisdiction of the claims against the United States pursuant to 28 U.S.C. § 1346(b). It had jurisdiction to hear the claims against the private defendants pursuant to 28 U.S.C. § 1332(a)(1) and 28 U.S.C. § 1367(b).

Plaintiffs alleged that Stephen had suffered a "toxic insult" as a result of his exposure to a neurotoxic "soup" of chemicals. Specifically, plaintiffs argued that the tar contained solvents and derivatives, such as TOCP and toluene, and may have also contained dissolved pesticides. Plaintiffs contended that these neurotoxins, acting singly or in combination, were responsible for Stephen's injury.

Plaintiffs presented the testimony of several experts to support their claims:

• Dr. Lieberman testified that "[t]he causation was most probably related to an exposure of chlorinated hydrocarbons

coming from asphalt and the possibility of contamination also with chlorinated hydrocarbons that were coming from pesticide which was in the soil." App. 14a.

• Dr. Robert Simon is a chemist, industrial hygienist, and toxicologist who was retained by plaintiffs in August 1992 to test 73 Lafayette for toxic substances. The Goeweys, on the advice of Dr. Lieberman, had already relocated next door to 71 Lafayette. JA 485. Although Dr. Simon obtained soil samples of 73 Lafayette from Julie Goewey, permission to test the premises further was denied by the then-current occupant. However, Dr. Simon conducted a comparable analysis at 71 Lafayette and also tested toys, furniture, carpeting, and the vacuum cleaner which had previously been at 73 Lafayette. JA 978. Dr. Simon found chlordane, aldrin, and dieldrin, as well as organophosphates. JA 908-13, 970-1000. Dr. Simon also opined that TOCP was in the tar based on an analysis he did in February 1994 of the shirt Julie Goewey was wearing on the day Stephen was exposed. JA 936. He found trace elements of TOCP in the shirt even though it had since been washed several times. JA 949, 1001-02. Dr. Simon further noted that TOCP can be added to help the roofing materials flow. JA 937. Although the "material safety data sheet" for the roof coating did not list TOCP as an ingredient, such sheets do not list every ingredient, JA 152, 929, and TOCP would most likely not be listed because it is not volatile. JA 937-38. Dr. Simon opined that the tar and pesticides had an impact on Stephen's condition and that his symptoms were consistent with toxic exposure. JA 911, 936.

• Dr. Lorne H. Garretson, an associate professor of pediatrics at Emory University School of Medicine who is board-certified in medical toxicology and co-director of the Nation's fifth largest poison control center, JA 236, opined that Stephen was probably injured by exposure to TOCP. App. 35a.

• Dr. Abou-Donia confirmed through monoclonal antibody testing that Stephen had been exposed to TOCP. Although this testing is typically performed primarily on chickens, what is tested is the phospholoration of neurofilaments — a

physiological response that does not vary from chickens to humans. JA 396, 1629. Dr. Abou-Donia indicated that his methodology was sound and quite reliable. JA 267-68, 270. Indeed, Dr. Abou-Donia has published an explanation of the test in a publication co-authored by members of the Neurotoxicology Division of the U.S. Environmental Protection Agency. JA 427. The rate of error in monoclonal antibody assays is known to be extremely low, especially for false positives, according to FD's own expert, since it is but a measurement. JA 1006. Dr. Abou-Donia explained that TOCP can produce delayed neurotoxicity, with early stages of neurological dysfunction lasting three to six months after the initial onset of symptoms. JA 38-83. The stage begins with cramping, burning, tightness, and tingling and ultimately results in the dragging of a foot or a foot drop. *Id.* The "stationary" phase, in which there is little change in the patient's condition, lasts from three to twelve months, and then there is an improvement. *Id.* Dr. Abou-Donia stated that only in a mature person who could communicate his symptoms would he be skeptical about a delayed neurotoxicity for two months or more without interim complaints. JA 391.

• Dr. Peter Bernad, a board-certified neurologist, opined that Stephen's condition was caused by a toxic insult. JA 511. He testified that, aside from an episode of oxygen deprivation, a toxic insult would be the only explanation for his injury. JA 511-18. Dr. Bernad based his opinion on the fact that Stephen was a normally developing youngster until he was exposed to the tar. According to Dr. Bernad, this was not a case of a progressive neurological deterioration.

• Dr. David Hartman, a licensed clinical psychologist who specializes in neurotoxicology, JA 1169-75, attended the neuropsychological testing performed by Dr. Berg, reviewed Stephen's records, and conducted a literature search. JA 1176-79. Dr. Hartman opined that Stephen's problems were caused by a neurotoxin related to his exposure to the tar. JA 1121. He believed that the damage suffered by Stephen could have been produced by a number of possible neurotoxins, including TOCP,

pyridine compounds, or multiple hydrocarbons. JA 1120, 1179. He explained:

> [T]hese experts are really saying one thing overall, and the fact is . . . they are saying . . . this syndrome is very clearly related to a neurotoxic event. They have proposed different possibilities to account for it, but they are saying something that unites all of their opinions, that this symptom pattern and the degenerative changes . . . Stephen Goewey underwent is of a neurotoxic nature to a reasonable degree of neuropsychological certainty.

JA 1119-22. Dr. Hartman ruled out neurological diseases of unknown etiology (FD's diagnosis) because virtually every progressive neurological disease, with the exception of multiple sclerosis, does not "just come to a dead stop after a certain period of time, and then even show some slight improvement." JA 1164-65.[5] Most progressive central nervous system diseases by their very nature proceed to a fatal outcome. JA 1165. Dr. Hartman also ruled out genetic causes. JA 1163.

4. The District Court's Decision. By decision of May 15, 1995 (amended May 19, 1995), the district court dismissed plaintiffs' claims against the United States and granted summary judgment to FD, relying principally on this Court's decision in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993).[6] The district court began by erroneously stating that plaintiffs' theory of causation was limited to TOCP; it ignored other possible components of the neurotoxic soup (such as toluene or pesticides) to which Stephen had been exposed. App.

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[5] On this point, there was agreement among Dr. Hartman and Dr. Barbosa (plaintiff's treating pediatric neurologist), Dr. Bernad (plaintiff's expert neurologist), and Dr. Morales (the United States' treating pediatric neurologist). JA 188, 224, 503.

[6] Petitioners do not now challenge the dismissal of the claims against the United States.

34a. In addition, the district court apparently overlooked Dr. Lieberman's testimony, for the court did not even mention it.

Nonetheless, the district court held that the testimony of plaintiffs' remaining experts was inadmissible under *Daubert* because "Plaintiffs have failed to adduce any evidence that TOCP was in the roof sealant" (App. 35a) and because their expert testimony was supposedly "based on theoretical speculation" (*id.*) and "conjecture." App. 38a.

The court also focused on the different toxic substances considered by plaintiffs' experts as possible causes of Stephen's problems. "Where so many inconsistencies emerge from one side, the court must conclude that Plaintiffs are merely speculating as to causation." App. 39a.

Finally, notwithstanding the evidence that Stephen did not suffer from a genetic condition or from a progressive neurological disease, the court further held that plaintiffs "have also failed to rule out all other inconsistent conclusions." App. 39a. The court relied on opposing experts who concluded that Stephen's condition had no known cause.

5. The Court of Appeals' Decision. Plaintiffs filed a timely notice of appeal on June 9, 1995.[7] On January 30, 1997, the Fourth Circuit affirmed the district court in all respects, over a lengthy separate opinion by Senior Circuit Judge Butzner dissenting in relevant part.

Regarding the grant of summary judgment to FD, the court held that it could not "say that the district court abused its discretion in excluding this expert testimony as 'not sufficiently reliable' under *Daubert*." App. 8a. The court noted that "[n]o single one of Goewey's three witnesses could testify both that TOCP was present in the roof sealant, and that, if present, TOCP could cause Goewey's injury." App. 7a. The Fourth Circuit also held that the district court properly rejected the testimony of

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[7] The U.S. Court of Appeals for the Fourth Circuit had jurisdiction over plaintiffs' appeal pursuant to 28 U.S.C. § 1291.

plaintiffs' experts Drs. Bernad and Hartman "as 'insufficiently definite,' 'speculative,' 'conjectural,' and 'inconsistent.'" App. 8a. Indeed, the court of appeals opined that plaintiffs could not allege that Stephen's injury was due to exposure both to TOCP and to other neurotoxins, as these claims would be "inconsistent." *Id.*

Senior Judge Butzner dissented with respect to the summary judgment issue. He recounted this Court's holding in *Daubert* governing the admissibility of expert testimony. App. 10a-12a. He concluded that "Dr. Lieberman's testimony satisfied *Daubert's* twin touchstones of reliability and relevance"; that it was therefore admissible; and that it "present[ed] a genuine issue of material fact." App. 10a, 12a.

Judge Butzner began by noting Dr. Lieberman's impressive credentials. App. 12a. "There can be no doubt that Dr. Lieberman was well qualified to testify about the neurological consequences of Stephen Goewey's exposure to the tar or asphalt that Fluor Daniel applied to the Goewey residence." *Id.* Further, Judge Butzner found that "Dr. Lieberman's method of diagnosis" — differential diagnosis — "was scientifically reliable." *Id.* Stephen was one of Dr. Lieberman's patients. "Dr. Lieberman based his diagnosis on examinations, clinical tests, and a thorough case history. Dr. Lieberman's differential diagnosis satisfied *Daubert's* requirement that an expert's testimony must be reliable." App. 13a.

Dr. Lieberman concluded that Stephen's problems were "most probably" due to exposure to a solvent like toluene or to pesticides. App. 14a. He reasoned: "[I] feel at this time that we do have biological markers of exposure with hippuric acid from the toluene and the sample taken at the Medical University for the oxychlordane [pesticide]. So I'm perfectly satisfied." *Id.* (bracket added).

Judge Butzner also noted that a claim of concurrent causation due to multiple ingredients in a neurotoxic "soup" was not barred by either federal or state law. "Dr. Lieberman's opinion that the tar and the pesticide caused Stephen's injury does not preclude

the admissibility of his testimony. Nor does it defeat Stephen's claim. The Supreme Court of South Carolina recognizes concurring causes." App. 14a. Thus, Judge Butzner concluded that "Stephen's evidence is sufficient to enable a reasonable jury to return a verdict in his favor." App. 16a.

Petitioners filed a timely petition for rehearing and a suggestion for rehearing in banc, which was denied on April 1, 1997. App. 1a.

REASONS FOR GRANTING THE WRIT

I. THIS CASE PRESENTS THE SAME QUESTION AS *GENERAL ELECTRIC v. JOINER* DOES

In *General Electric Co. v. Joiner*, No. 96-188 (cert. granted March 17, 1997), this Court granted review on the question: What is the standard of appellate review for trial court decisions excluding expert testimony under *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993)? This case presents the same question. This petition for certiorari should therefore be held in abeyance pending the decision in *General Electric Co. v. Joiner*.

In *Joiner*, the Eleventh Circuit stated that "[b]ecause the Federal Rules of Evidence governing expert testimony display a preference for admissibility, we apply a particularly stringent standard of review to the trial judge's exclusion of expert testimony." App. to Pet. for Cert. in No. 96-188, at 4a. General Electric contends that the Eleventh Circuit should instead have applied an abuse of discretion test.

Here, the Fourth Circuit applied the abuse of discretion standard advocated by General Electric. The court held that "we cannot say that the district court abused its discretion in excluding this expert testimony as 'not sufficiently reliable' under *Daubert*." App. 8a. The Fourth Circuit applied its previous decision in *United States v. Powers*, 59 F.3d 1460, 1471 (4th Cir. 1995) (cited at App. 8a), which held that "[w]e review

the district court's refusal to admit scientific evidence for abuse of discretion." 59 F.3d at 1471. "Under the *Daubert* analysis, a trial judge has a great deal of discretion in deciding whether to admit or exclude expert testimony." *Id.* (internal quotation omitted).

Hence, this case presents the same question as is under review in *Joiner*. Although we believe that this Court need not decide whether the application of a different standard of review would have made a difference in this case — that question should be answered in the first instance by the Fourth Circuit on remand — it is worth noting that there are reasons to think that closer appellate scrutiny might have changed the result below. The vote in this case was 2-1, with the dissenting judge discussing at length his reasons for believing that the *Daubert* requirements were satisfied.

There was ample evidence that Stephen had been exposed to neurotoxins. There was also ample evidence that Stephen exhibited symptoms consistent with a severe neurotoxic "insult." Extensive testing at Charleston Navy Hospital, Bethesda Naval Hospital, Duke University Medical Center, and the Medical University of South Carolina ruled out any other cause for Stephen's problems. Further, the fact that Stephen did not progressively deteriorate, but ultimately stabilized and began a slight improvement, was an indication that his problems were not the result of neurological disease or a genetic disorder.

Plaintiffs presented a series of well-qualified and highly credentialed experts, one of whom was entirely overlooked by the district court.[8] The district court dismissed the remaining

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[8] The district court did not even *mention* the testimony of Dr. Allan Lieberman, who concluded that Stephen's injury was "most probably" due to his exposure to the tar. App. 14a. Although the Fourth Circuit panel hypothesized that the district court's failure to make any reference whatsoever to Dr. Lieberman's testimony meant that the court did not exclude it, App. 9a, such conjecture is difficult to reconcile with the grant of summary judgment to FD. In any event, a more searching form of appellate review would have

expert testimony as "based on theoretical speculation" (App. 35a) and "conjecture" (*id.* at 38a), primarily because "[p]laintiffs have failed to adduce any evidence that TOCP was in the roof sealant." App. 35a. The court, however, was in error, for plaintiffs' introduced a variety of evidence — ranging from Dr. Abou-Donia's monoclonal antibody assays to Dr. Simon's analysis of Julie Goewey's shirt — to prove that Stephen had been exposed to TOCP. Further, the court overlooked the causal link to other neurotoxins, such as toluene, and erroneously believed that this was solely a TOCP case.

In short, this Court need not undertake a fact-intensive review of the record in order to appreciate that this was a close case where application of a different standard of appellate review might well have produced a different outcome.

II. THIS CASE PRESENTS FURTHER QUESTIONS ABOUT THE PROPER INTERPRETATION OF *DAUBERT*

This case presents further certworthy questions regarding the proper construction of *Daubert*, in addition to the Fourth Circuit's holding regarding the proper standard of appellate review. Hence, this case would be a good candidate for plenary review however this Court decides *Joiner*.

1. The Fourth Circuit's decision presents the question of whether *Daubert* permits a trial court to grant summary judgment notwithstanding contrary scientific evidence simply because the court disagrees with the substance of the expert's opinion, rather than with the methodology used by the expert in arriving at his or her opinion. The question arises in the instant case with respect to Dr. Allan Lieberman, Stephen Goewey's treating physician and an expert in neurological impairments. Dr.

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probed more deeply into such issues.

Lieberman testified that "[t]he causation was most probably related to an exposure of chlorinated hydrocarbons coming from asphalt and the possibility of contamination also with chlorinated hydrocarbons that were coming from pesticide which was in the soil." App. 14a.

As Senior Judge Butzner explained in a lengthy dissenting opinion, this testimony alone was enough to preclude summary judgment for FD. "There can be no doubt that Dr. Lieberman was well qualified to testify about the neurological consequences of Stephen Goewey's exposure to the tar or asphalt that Fluor Daniel applied to the Goewey residence." App. 12a. Nor can there be any doubt that Dr. Lieberman used a scientifically valid methodology: differential diagnosis. Dr. Lieberman reviewed Stephen's medical history, conducted a physical examination, reviewed the test results, and in general followed the usual practice employed by treating physicians in trying to determine the cause of their patients' injuries. The Federal Judicial Center's REFERENCE MANUAL ON SCIENTIFIC EVIDENCE 214 (West 1994), defines differential diagnosis as follows:

> The method by which a physician determines what disease process has caused a patient's symptoms. The physician considers all relevant potential causes of the symptoms and then eliminates alternative causes based on a physical examination, clinical tests, and a thorough case history.

If one of the aims of *Daubert* was to ensure that experts use the same methodologies *inside* the courtroom as they use in their professional capacities *outside* court, then differential diagnosis is plainly an appropriate methodology for scientific testimony. As Judge Butzner observed,

> Differential diagnosis is a well-recognized, reliable method of medical diagnosis that has gained "widespread acceptance" in the medical community. It has been subject to peer review and "does not frequently lead to

> incorrect results, it is a method that involves assessing causation with respect to a particular individual."

App. 13a (quoting *In re Paoli R.R. Yard PCB Litigation*, 35 F.3d 717, 758 (3d Cir. 1994), *cert. denied*, 115 S. Ct. 1253 (1995)).

Dr. Lieberman's testimony was plainly relevant under *Daubert*. It was undisputed that Stephen was exposed to the tar that FD applied to the Goewey's house. Dr. Lieberman found biomarkers in Stephen for toluene, a neurotoxic petroleum solvent contained in tar that can cause long-term neurological harm. App. 13a. A urinalysis of Stephen at Duke University revealed high levels of hippuric acid, a major metabolite and biomarker for toluene. App. 14a. Judge Butzner noted that:

> Although there was no evidence of toluene in Stephen's fat samples, Dr. Lieberman explained that he would not expect to see evidence of toluene 14 months after the incident in a substance as nonhomogeneous as fat. Evidence of toluene in fat would have confirmed the diagnosis, but the absence of such evidence did not rule out the presence of toluene.

App. 14a. Dr. Lieberman concluded: "[I] feel at this time that we do have biological markers of exposure with hippuric acid from the toluene and the sample taken at the Medical University for the oxychlordane [pesticide]. So I'm perfectly satisfied." App. 14a (bracket added). Judge Butzner explained that, under South Carolina law, FD could be held liable for harms caused not only by toxic substances contained in the tar but also by pesticides in the soil that were dissolved in the tar when it was negligently applied by FD employees. App. 14a.

The Fourth Circuit majority was able to sustain the district court's grant of summary judgment only by disputing the persuasiveness of Dr. Lieberman's conclusion. The court of appeals explained:

> Other than Dr. Lieberman's own assertions, we are unable to locate any evidence in the record to support this theory, and Goewey has pointed to none. Furthermore, at least two of Goewey's own experts have rejected the possibility that exposure to asphalt caused Goewey's injury.

App. 9a-10a.[9] These are jury arguments, not reasons for excluding the evidence or granting summary judgment to FD.

Not surprisingly, the Fourth Circuit's decision stands in stark contrast to decisions by other courts — including this Court — holding that such reasoning cannot provide a basis for summary judgment. This Court has explained that, under Rule 56(e), a "dispute about a material fact is 'genuine' . . . if the evidence is such that a reasonable jury could return a verdict for the nonmoving party." *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 248 (1986). As this Court observed in *Anderson*, "it is clear enough from . . . recent cases that at the summary judgment stage the judge's function is not himself to weigh the evidence and determine the truth of the matter but to determine whether there is a genuine issue for trial." *Id.* at 249. Most fundamentally, this Court has emphasized, the role of the jury may not be denigrated through use of "trial on affidavits," because "[c]redibility determinations, the weighing of the evidence, and the drawing of

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[9] The Fourth Circuit also claimed that "Goewey has abandoned the theory that chlordane exposure caused his injury." App. 9a. (citing JA at 149 n.5). But that is incorrect. The cited page in plaintiffs' brief states in relevant part:

> The plaintiffs do not wish the Court to believe they are representing chlordane alone could have caused Stephan's condition. Instead, as Dr. Simon has opined, the chlordane would have put Stephen at risk for a greater neurotoxic injury, and it may have been but one component of the "neurotoxic soup" to which Stephen was exposed since the tar was applied at the location where the chlordane had previously been installed.

legitimate inferences from the facts are jury functions." *Id.* at 255. It is the very

> "purpose of the jury . . . to sort out the true testimony from the false, the important matters from the unimportant matters, and, when called upon to do so, to give greater credence to one party's expert witnesses than another's. Such matters occur routinely in the American judicial system, both civil and criminal."

Barefoot v. Estelle, 463 U.S. 880, 902 (1983) (citation omitted). As the D.C. Circuit has explained, "there is nothing in *Daubert* to suggest that judges become scientific experts, much less evaluators of the persuasiveness of an expert's conclusion." *Ambrosini v. Labarraque*, 101 F.3d 129, 134 (D.C. Cir. 1996), *cert. dismissed*, 117 S. Ct. 1572 (1997); *see also Quinton v. Farmland Industries, Inc.*, 928 F.2d 335, 338 (10th Cir. 1991) (explaining that a challenge to sufficiency of evidence on a factual issue must fail if there is admissible expert opinion testimony on the issue); *Rodriguez v. Olin Corp.*, 780 F.2d 491, 496 (5th Cir. 1986) ("an expert's opinion or interpretation of evidence is itself evidence"); *Ferebee v. Chevron Chemical Co.*, 736 F.2d 1529, 1535 (D.C. Cir.), *cert. denied*, 469 U.S. 1062 (1984) (when qualified experts testify to different conclusions about causation and "differ[] solely on the conclusions they [draw] from the test results and other information," this is a "classic battle of the experts . . . in which the jury must decide the victor") (citation omitted).

A grant of certiorari is warranted in light of the Fourth Circuit's divergence from the decisions of this Court and the other courts of appeals recognizing this established principle of law.

2. The Fourth Circuit also held that the district court properly excluded other expert testimony proffered by plaintiffs because "[n]o single one of Goewey's three witnesses could testify both

that TOCP was present in the roof sealant, and that, if present, TOCP could cause Goewey's injury." App. 7a. For example, "[o]ne witness, Dr. Robert Simon, testified to the presence of TOCP, but could not testify to the causal connection between TOCP and Goewey's injury." *Id.* "While Goewey's two other witnesses — Drs. Garretson and Abou-Donia — testified in support of the TOCP causation theory, neither had any knowledge of the presence of TOCP in the roof sealant." *Id.*

But nothing in *Daubert* forbids a plaintiff from combining the testimonies of more than one expert to satisfy the elements of his claim of causation. A plaintiff is not required to put forward a single expert who is able to testify as to every link in the causation chain. Indeed, such a requirement would be at odds with the basic principle that the evidence is to be viewed as a whole in determining whether a party has satisfied the applicable burden of proof. *E.g.*, *Piraino v. International Orientation Resources*, 84 F.3d 270, 274 (7th Cir. 1996) (permitting plaintiff to prove employment discrimination claim via "a mosaic of evidence which, taken together, would permit a jury to infer discriminatory intent"); *United States v. Mendoza-Salgado*, 964 F.2d 993, 1007 (10th Cir. 1992) ("'all the evidence was mosaic, each making its contribution, and all building up to a compelling whole that . . . the jury should actually view'") (quoting *United States v. Masiello*, 235 F.2d 279, 283 (2d Cir.), *cert. denied*, 352 U.S. 882 (1956)); *United States v. Marks*, 816 F.2d 1207, 1212 (7th Cir. 1987) ("the probative value of evidence often depends on its being part of a mosaic").

Even guilt beyond a reasonable doubt may be proven through "a 'mosaic' made up of many 'tiles.'" *United States v. Wihbey*, 75 F.3d 761, 771 (1st Cir. 1996). "[E]ach piece of evidence and every 'inference forming a part of the mosaic making up the jury's ultimate finding of guilt beyond a reasonable doubt need [not] itself be established beyond a reasonable doubt.'" *United States v. De Masi*, 40 F.3d 1306, 1317 (1st Cir. 1994) (internal quotation omitted; brackets in original), *cert. denied*, 115 S. Ct. 947 (1995).

The Fourth Circuit's decision below is flatly inconsistent with the principle manifested by these decisions in other circuits. The Fourth Circuit would create a new and extremely burdensome requirement that would arbitrarily exclude expert testimony in a wide range of cases. It would all but do away with the practice of "hypothetical" questions posed to experts, where the predicate for the expert's assumption is proved through other witnesses. Nothing in *Daubert* or in the Federal Rules of Evidence could possibly justify such a requirement. Plenary review is warranted.

3. The Fourth Circuit also held that summary judgment was appropriate because plaintiffs alleged that both tar and pesticides could have been responsible for Stephen's injury. App. 8a. The court of appeals described plaintiffs' theory of liability as "flatly inconsistent." *Id.*

But the Fourth Circuit was wrong. Plaintiffs' claim that Stephen was injured by a neurotoxic soup of a combination of chemicals presented no danger of inconsistency — only a question of multiple causation. As Dr. Hartman testified:

> [T]hese experts are really saying one thing overall, and the fact is . . . they are saying . . . this syndrome is very clearly related to a neurotoxic event. They have proposed different possibilities to account for it, but they are saying something that unites all of their opinions, that this symptom pattern and the degenerative changes . . . Stephen Goewey underwent is of a neurotoxic nature to a reasonable degree of neuropsychological certainty.

JA 1119-22.

Moreover, it is settled that, in a case in a pretrial posture such as the instant one, a plaintiff may "plead and argue alternative and even inconsistent theories of liability." *Campbell v. American Crane Corp.*, 60 F.3d 1329, 1333 n.2 (8th Cir. 1995); *see also Witham v. Whiting Corp.*, 975 F.2d 1342, 1345 n.3 (7th Cir. 1992). The right to do so is recognized in Fed. R. Civ. P.

8(e)(2), which specifically permits a plaintiff to state as many separate claims as the party has "regardless of consistency." As Judge Butzner observed here:

> The need to state multiple claims is particularly pressing in the discovery phase when a plaintiff needs to explore all possibilities in a case such as this. The need was aggravated because the government lost or misplaced the only sample of the tar that was taken shortly after Stephen's exposure.

App. 15a.

Even at the trial stage, this Court has long held that medical unanimity is not required among the plaintiff's experts for a jury to draw its own causal conclusions and that experts may testify that there was more than one potential cause of the plaintiff's injuries. *Sentilles v. Inter-Caribbean Shipping Corp.*, 361 U.S. 107, 109 (1959) ("The jury's power to draw the inference that the aggravation of petitioner's tubercular condition, evident so shortly after the accident, was in fact caused by that accident, was not impaired by the failure of any medical witness to testify that it was in fact the cause. Neither can it be impaired by the lack of medical unanimity as to the respective likelihood of the potential causes of the aggravation, or by the fact that other potential causes of the aggravation existed and were not conclusively negated by the proofs."); *see also Tennant v. Peoria & Pekin Union R. Co.*, 321 U.S. 29, 35 (1944) ("It is not the function of a court to search the record for conflicting circumstantial evidence in order to take the case away from the jury on a theory that the proof gives equal support to inconsistent and uncertain inferences."); *Hines v. Consolidated Rail Corp.*, 926 F.2d 262, 269 (3d Cir. 1991) ("Despite this lack of medical unanimity over the particular cause of the illness, the [Supreme] Court concluded that the differences in testimony did not impair the jury's ability to draw causal inferences.").

Accordingly, the Fourth Circuit has decided important

matters of federal law in a manner that conflicts with decisions of this Court and with those of the other federal courts of appeals. Plenary review is warranted.

CONCLUSION

For the foregoing reasons, the petition for writ of certiorari should be granted or, at minimum, held pending the decision in *General Electric Co. v. Joiner*, No. 96-188.

Respectfully submitted.

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June 30, 1997

APPENDIX

APPENDIX A

UNITED STATES COURT OF APPEALS
FOR THE FOURTH CIRCUIT

FILED
April 1, 1997

No. 95-2257
CA-92-2543-2-22

STEPHEN L. GOEWEY, a minor, by his next friend; JULIE A. GOEWEY; KEVIN D. GOEWEY, both as individuals and as parents of Stephen L. Goewey

Plaintiffs - Appellants

v.

UNITED STATES OF AMERICA; FLUOR DANIEL, INCORPORATED; FD SERVICES, INCORPORATED

Defendants - Appellees

and

VELSICOL CHEMICAL CORPORATION

Defendant

On Petition for Rehearing with Suggestion for Rehearing In Banc

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Appellants filed a petition for rehearing with suggestion for rehearing in banc.

Judge Butzner voted to grant panel rehearing.

No member of the Court requested a poll on the suggestion for rehearing in banc.

The Court denies the petition for rehearing with suggestion for rehearing in banc.

Entered at the direction of Judge Wilkinson with the concurrence of Judge Luttig.

For the Court,

/s/ Patricia S. Connor
Clerk

APPENDIX B

UNITED STATES COURT OF APPEALS
FOR THE FOURTH CIRCUIT

STEPHEN L. GOEWEY, a minor, by his next friend; JULIE A. GOEWEY; KEVIN D. GOEWEY, both as individuals and as parents of Stephen L. Goewey, Plaintiffs-Appellants,

v.

UNITED STATES OF AMERICA; FLUOR DANIEL, INCORPORATED; FD SERVICES, INCORPORATED, Defendants-Appellees,

and

VELSICOL CHEMICAL CORPORATION, Defendant.

No. 95-2257

Appeal from the United States District Court for the District of South Carolina, at Charleston. Cameron McGowan Currie, District Judge.
(CA-92-2543-2-22)

Argued: October 31, 1996

Decided: January 30, 1997

Before WILKINSON, Chief Judge, LUTTIG, Circuit Judge, and BUTZNER, Senior Circuit Judge.

Affirmed by unpublished per curiam opinion. Senior Judge Butzner wrote an opinion concurring in part and dissenting in part.

COUNSEL

ARGUED: Michael Douglas Block, BLOCK, KROCKEY, CERNUGEL & COWGILL,P.C., Joliet, Illinois, for Appellants. Andrew Steven Halio, HALIO & HALIO, Charleston, South Carolina, for Appellees Fluor Daniel and FD Services; James C. Brennan, Trial Attorney, Torts Branch, Civil Division, UNITED STATES DEPARTMENT OF JUSTICE, Washington, D.C., for Appellee United States.

ON BRIEF: Wheeler M. Tillman, TILLMAN LAW FIRM, North Charleston, South Carolina, for Appellants. Frank W. Hunger, Assistant Attorney General, Margaret Seymour, United States Attorney, J. Patrick Glynn, Director, JoAnn J. Bordeaux, Deputy Director, David S. Fishback, Assistant Director, Torts Branch, Civil Division, UNITED STATES DEPARTMENT OF JUSTICE, Washington, D.C., for Appellee United States.

Unpublished opinions are not binding precedent in this circuit. See Local Rule 36(c).

OPINION

PER CURIAM:

Appellant-plaintiff Stephen Goewey appeals the dismissal for lack of subject matter jurisdiction of his claim against appellee-defendant United States (the "government"), and the summary judgment dismissal of his claim against

appellees-defendants Fluor Daniel, Inc. and its subsidiary FD Services, Inc. (collectively, "FD"). We affirm.

I.

In 1989, Stephen Goewey, then one-year-old, lived with his parents, Julie and Kevin Goewey, in United States Naval housing owned by the government. The government employed FD as an independent contractor to provide maintenance and repair services for its Naval housing. In August of 1989, Julie Goewey notified the government that her house had a foundation level water leak. In response, the government issued a work order to FD, which stated: "WATERPROOF ABOVE & BELOW GRND FOUNDATION LEAK." J.A. at 1485.

Consequently, on August 30, 1989, an FD employee reported to the Goewey home to repair the leak. The employee dug a trench down to the foundation of the house, and then applied roofing sealant to the exterior of the house, from approximately three feet below to several inches above the ground level of the house. On September 5, a second FD employee returned to touch up the work done by the first employee.

On September 12, 1989, Julie Goewey discovered her son sitting in a puddle of the roof sealant near the house, with his body covered with the sealant. Sometime thereafter, Goewey began experiencing difficulties with his motor coordination, and he was eventually diagnosed as having a severe neurological disorder.

Goewey, through his parents, filed suit against the government under the Federal Tort Claims Act ("FTCA"), 28 U.S.C. § 2671 et seq., and against FD under state tort law, claiming that his neurological disorder was caused by his exposure to Triorthocresylphosphates ("TOCP"), a chemical that he alleges was in the roof sealant. The district court dismissed the suit against the government for lack of subject matter jurisdiction,

and granted summary judgment in favor of FD on the issue of medical causation.

II.

The district court dismissed the suit against the government for lack of subject matter jurisdiction, concluding that Goewey's suit was barred by sovereign immunity. According to the district court, under the discretionary function and independent contractor exceptions to the FTCA, see Williams v. United States, 50 F.3d 299 (4th Cir. 1995), the FTCA did not provide a waiver of the government's sovereign immunity. Therefore, Goewey could not sue the government for what were the allegedly negligent acts of FD.

Finding no error in the district court's conclusion, we affirm the judgment of the district court.

III.

The district court also granted summary judgment in favor of FD on the issue of medical causation. Goewey's primary theory as to FD's liability was that his exposure to TOCP, which he alleges was present in the roof sealant, caused his neurological disorder. J.A. at 149. The district court excluded all of Goewey's expert witnesses on the TOCP theory, and also Goewey's key expert witnesses on non-TOCP theories, under Baughman v. American Tel. & Telegraph, 306 S.C. 101, 410 S.E.2d 537 (S.C. 1991), and Daubert v. Merrill-Dow Pharmaceuticals, Inc., 509 U.S. 579, 113 S. Ct. 2786, 125 L. Ed. 2d 469 (1993). The district court then granted summary judgment in favor of FD. We affirm.

Under South Carolina tort law, Goewey was required to present expert testimony that his theory of causation is more probably true than any other alternative theory of causation. Baughman, 410 S.E.2d at 543. Even if the proffered testimony is sufficient

to satisfy Baughman, however, the district court may still exclude expert testimony if it finds that the testimony is unreliable. See United States v. Dorsey, 45 F.3d 809, 813 (4th Cir. 1995) (citing Daubert, 113 S. Ct. at 2794-95).

The district court first excluded the testimony of the three experts who testified in support of Goewey's TOCP theory of liability -- Drs. Robert K. Simon, M.D., Lorne K. Garretson, Ph.D., and Mohamed Abou-Donia, M.D. We have carefully reviewed the record, and we agree that the district court properly excluded this testimony.

No single one of Goewey's three witnesses could testify both that TOCP was present in the roof sealant, and that, if present, TOCP could cause Goewey's injury. One witness, Dr. Robert Simon, testified to the presence of TOCP, but could not testify to the causal connection between TOCP and Goewey's injury. See J.A. at 164, Appellant's Br. Reply at 15. Dr. Simon's own report, however, stated that his conclusions were "consistent with the presence of TOCP, but not confirmatory," J.A. at 1001, and that "the presence of interfering substances . . . had decreased [his] confidence in the result," J.A. at 1002. While Goewey's two other witnesses -- Drs. Garretson and Abou-Donia -- testified in support of the TOCP causation theory, neither had any knowledge of the presence of TOCP in the roof sealant. And another of Goewey's expert witnesses, Dr. Peter Bernad, flatly rejected the TOCP causation theory. J.A. at 526.

All of the other evidence points to the absence of any TOCP in the roof sealant. The uncontradicted testimony of the manufacturer of the roof sealant is that "it does not currently use, and has never used, . . . TOCP in any of its formulations." J.A. at 1515. This is consistent with the Material Data Safety Sheet that accompanied the roof sealant here at issue, which did not list TOCP as a constituent of the sealant. Indeed, according to Dr. Garretson, TOCP is not ordinarily found in roof sealant, and so

would have had to have been added to the roof sealant by FD's employees. J.A. at 279. FD's employees, however, denied adding anything to the sealant. J.A. at 620, 854, 857.

Given this, we cannot say that the district court abused its discretion in excluding this expert testimony as "not sufficiently reliable" under Daubert, J.A. at 164, see United States v. Powers, 59 F.3d 1460, 1471 (4th Cir. 1995), or that it erred in rejecting the expert testimony under Baughman. Accordingly, we affirm the district court's grant of summary judgment in favor of FD on the TOCP theory of medical causation.

As a secondary theory of liability, Goewey argues that chemicals other than TOCP, which were present in the roof sealant, caused his injury. In support of this argument, he relies on the testimony of three additional experts -- Drs. Peter Bernad, David Hartman, and Allan Lieberman. At the outset, we note that Goewey's primary theory of liability -- TOCP exposure -- is flatly inconsistent with this secondary theory of liability, and so, under Baughman, summary judgment in favor of FD is appropriate. Even assuming no such inconsistency, however, the district court's judgment was still appropriate.

The district court properly rejected the testimony of Drs. Bernad and Hartman under Daubert and Baughman as "insufficiently definite," "speculative," "conjectural," and "inconsistent." J.A. at 165-66. Both experts could only speculate as to what caused Goewey's injury; neither could point to a specific causative factor. Dr. Bernad, in what he characterized as his "best conclusion," could only state that "I cannot tell you what chemical, what material, whether in tar or asphalt, whether toulene, xylene, solvents, trichloroethylene, whether an acute organophosphorus reaction, whether chronic and so-called organophosphorus-induced delayed neuropathy or any other disease state ensued. Unfortunately, none of us were there." J.A. at 514. The only specific theory that he offered, that Goewey

suffocated on the roof sealant, J.A. at 515, is flatly contradicted by the evidence that Goewey's mouth had at most minimal contact with the roof sealant, J.A. at 686-87, 805, 1495, a fact of which Dr. Bernad was not aware, J.A. at 518. Similarly, Dr. Hartman, could state only that Goewey's injury was "caused by a neurotoxin related to his exposure to tar," J.A. at 1121, but he could not specify which neurotoxin caused the injury, J.A. at 1122. As his "personal favorite" explanation, Dr. Hartman could offer only a theory of "pyradine" exposure, J.A. at 1130, which the district court noted was supported by but "a handful of articles and [was] based on experimental studies injecting . . . a pyradine derivative into potatoes and mice," and thus could "not survive Daubert analysis," J.A. at 166.

Since the district court made no reference whatsoever to the testimony of Dr. Lieberman, we assume that this evidence was not excluded by the district court under Daubert or Baughman. Even so, the district court's grant of summary judgment was not in error. Dr. Lieberman testified that Goewey's injury was "most probably" caused by "an exposure of chlorinated hydrocarbons coming from asphalt and the possibility of contamination also with chlorinated hydrocarbons that were coming from pesticide which was in the soil," Lieberman Deposition at 16.[1] Although Dr. Lieberman's testimony is at times difficult to follow, he apparently believes that either toulene, a chemical in asphalt, or chlordane, a pesticide, caused Goewey's injury. J.A. at 486. Goewey has abandoned the theory that chlordane exposure caused his injury. See J.A. at 149 n.5. And regarding the asphalt theory of causation, we cannot say that the district court erred in granting summary judgment in favor of FD. Other than Dr. Lieberman's own assertions, we are unable to locate any evidence in the record to support this theory, and Goewey has pointed to

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[1] We note that although Dr. Lieberman considered himself an expert in neurology, he was board-certified only in pediatrics. J.A. at 476-77.

none. Furthermore, at least two of Goewey's own experts have rejected the possibility that exposure to asphalt caused Goewey's injury. J.A. at 271-72 (Garretson), 530-31 (Bernad). [2]

Conclusion

For the reasons stated herein, we affirm the judgment of the district court.

AFFIRMED

BUTZNER, Senior Circuit Judge, concurring in part and dissenting in part:

I concur in the affirmance of the judgment dismissing the United States. I dissent from the summary judgment in favor of Fluor Daniel, Inc., and its subsidiary on the issue of medical causation. I am persuaded that Dr. Allan Lieberman's testimony is admissible and that it presents a genuine issue of material fact.

In Daubert v. Merrell Dow Pharmaceuticals, 509 U.S. 579, 125 L. Ed. 2d 469, 113 S. Ct. 2786 (1993), the Supreme Court restated the rules of admissibility of expert testimony. Previously in most circuits expert testimony was only admissible

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[2] Goewey also argues that the district court erred in denying his motion to inspect the property on which he had been exposed to the roof sealant in order to collect a sample of the sealant. We disagree. As the district court noted, Goewey's failure to file this motion until two months after he learned that no current sample of the sealant existed, one month after the date that the district court had set as the cut-off date for discovery, and one week after the government and FD filed their motions to dismiss and for summary judgment, provided a sufficient basis to deny Goewey's motion. Alternatively, as the district court noted, any potential sampling of the roof sealant, taken now five years after Goewey's exposure to it, would be "inherently suspect," J.A. at 170.

if it was based upon theories or techniques that had gained "general acceptance" in the relevant scientific field. Frye v. United States, 54 App. D.C. 46, 47, 293 F. 1013, 1014 (1923). Daubert held that the "austere standard" of the Frye test had been displaced by the Federal Rules of Evidence, Daubert, 509 U.S. at 589. Consequently, courts may admit expert testimony if it meets a two-prong test for reliability and relevance. Id. at 587. See generally United States v. Dorsey, 45 F.3d 809, 813-14 (4th Cir. 1996).

The tests for reliability and relevance derive from Rule 702 of the Federal Rules of Evidence. Rule 702 permits an expert to testify to any "scientific, technical or other specialized knowledge that will assist the trier of fact to understand the evidence or to determine a fact in issue." An expert's testimony is reliable if it is based on "scientific knowledge" -- a body of facts or inferences which are "grounded in the methods and procedures of science." Id. at 590.

With respect to the second prong, relevancy, the Supreme Court adopted the definition stated in Rule 401, which provides that relevant evidence is that which has "'any tendency to make the existence of any fact that is of consequence to the determination of the action more probable or less probable than it would be without the evidence.' Rule 401. The Rules' basic standard of relevance thus is a liberal one." Id. at 587. Nevertheless, the testimony must not run afoul of Rule 403, which cautions against evidence that misleads the jury through unfair prejudice or confusion of the issues. Id. at 595. The substance of the expert's testimony "requires a valid scientific connection to the pertinent inquiry as a precondition to admissibility." Id. at 591-92.

Daubert encourages courts to consider a variety of factors in assessing whether an expert's testimony is scientifically reliable and relevant. These factors include whether the expert's scientific theory or technique has been tested, peer-reviewed, or

published, as well as its applicable rate of error. Id. at 593. Courts may also consider whether the scientific method meets Frye's standard of "general acceptance" in the particular scientific field. Id. at 594. Daubert, however, emphasized that these factors should only provide general guidance to lower courts and should not serve as a definitive checklist that courts must follow. Id. at 593.

Dr. Lieberman's testimony satisfied Daubert's twin touchstones of reliability and relevance. Dr. Lieberman is a board certified pediatrician who practices occupational and environmental medicine. He also has extensive clinical experience in pediatric neurology. For five years, Dr. Lieberman served as medical director of the Vince Mosley Diagnostic and Evaluation Clinic of Charleston, South Carolina, which is the center for the diagnosis of neurologically handicapped children. He was also medical director of the Coastal Rehabilitation Center in Charleston, a state institution which serves neurologically handicapped children and adults. He served as Chief of Pediatrics at the United States Naval Hospital in Charleston, South Carolina, and he was a lecturer in applied neuroanatomy at the Medical University of South Carolina. In addition to being board certified in pediatrics, he is a Fellow, American Academy of Environmental Medicine, and a Diplomat, American Board of Environmental Medicine. There can be no doubt that Dr. Lieberman was well qualified to testify about the neurological consequences of Stephen Goewey's exposure to the tar or asphalt that Fluor Daniel applied to the Goewey residence.

Dr. Lieberman's method of diagnosis was scientifically reliable. He diagnosed Stephen's condition using differential diagnosis. The Federal Judicial Center's Reference Manual on Scientific Evidence, 214 (West 1994), defines differential diagnosis as follows:

> The method by which a physician determines what disease

process has caused a patient's symptoms. The physician considers all relevant potential causes of the symptoms and then eliminates alternative causes based on a physical examination, clinical tests, and a thorough case history.

See also Dorland's Illustrated Medical Dictionary 369 (6th Ed. 1985). Differential diagnosis is a well-recognized, reliable method of medical diagnosis that has gained "widespread acceptance" in the medical community. It has been subject to peer review and "does not frequently lead to incorrect results, it is a method that involves assessing causation with respect to a particular individual." In re Paoli R.R. Yard PCB Litigation, 35 F.3d 717, 758 (3d Cir. 1994). Stephen was one of Dr. Lieberman's patients. Dr. Lieberman based his diagnosis on examinations, clinical tests, and a thorough case history. Dr. Lieberman's differential diagnosis satisfied Daubert's requirement that an expert's testimony must be reliable.

Dr. Lieberman's testimony also satisfies Daubert's second requirement that an expert's testimony must be relevant. It is undisputed that Stephen was exposed to the tar that Fluor Daniel applied to the family residence. The evidence discloses that 80% of the child's body was covered with tar. He had tar on his hands and under his fingernails. While his mother was trying unsuccessfully to wash the tar off, he kept putting his hands in his mouth with such frequency that a navy employee suggested that Stephen's mother should hold his hands down. His teeth were coated with tar, and the day after his initial exposure to the tar he still had tar on his teeth, fingernails, toenails, and eyebrows. Before exposure, he was a normal child. After exposure, he suffered severe neurological deficits.

Dr. Lieberman found biomarkers in Stephen for toluene, a neurotoxic petroleum solvent contained in tar or asphalt that can cause long-term toxicity. A urinalysis of Stephen at Duke University revealed high levels of hippuric acid, the major

metabolite and biomarker for toluene. Though there was no evidence of toluene in Stephen's fat samples, Dr. Lieberman explained that he would not expect to see evidence of toluene 14 months after the incident in a substance as nonhomogeneous as fat. Evidence of toluene in fat would have confirmed the diagnosis, but the absence of such evidence did not rule out the presence of toluene. Specifically, the doctor reasoned: "[I] feel at this time that we do have biological markers of exposure with hippuric acid from the toluene and the sample taken at the Medical University for the oxychlordane [pesticide]. So I'm perfectly satisfied." (bracket added).

Dr. Lieberman explained in detail why he believed that Stephen was not suffering from genetic deficiencies. He testified that Stephen suffers from brain damage. With respect to causation, he concluded: "The causation was most probably related to an exposure of chlorinated hydrocarbons coming from asphalt and the possibility of contamination also with chlorinated hydrocarbons that were coming from pesticide which was in the soil." In South Carolina, an expert testifying to causation must state that the data on which he bases his conclusion most probably caused the injury. Baughman v. American Tel. & Telegraph, 306 S.C. 101, 111, 410 S.E.2d 537, 543 (1991). Dr. Lieberman's expert testimony about the toluene in the tar satisfies South Carolina's "most probably" requirement of causation.

Fluor Daniel did not apply the pesticide. But Dr. Lieberman's opinion that the tar and the pesticide caused Stephen's injury does not preclude the admissibility of his testimony. Nor does it defeat Stephen's claim. The Supreme Court of South Carolina recognizes concurring causes. In a passage that is clear and to the point, the Court wrote:

> When we speak of proximate cause, we are not referring to the "sole cause." In order to establish actionable negligence, the plaintiff is required only to prove that the negligence on

> the part of the defendant was at least one of the proximate, concurring causes of his injury. It is generally for the jury to say whether the defendant's negligence was a concurring, proximate cause of the plaintiff's injuries.

Hughes v. Children's Clinic, P. A., 269 S.C. 389, 398, 237 S.E.2d 753, 757 (1977).

Fluor Daniel emphasizes that plaintiff's experts disagree. But this does not compel dismissal of the plaintiff's case. Federal Rule of Civil Procedure 8 permits a plaintiff to state as many separate claims as the party has "regardless of consistency." The need to state multiple claims is particularly pressing in the discovery phase when a plaintiff needs to explore all possibilities in a case such as this. The need was aggravated because the government lost or misplaced the only sample of the tar that was taken shortly after Stephen's exposure. Fortunately the loss of the sample is not fatal. Stephen's urinalysis at Duke established the presence of a toxic constituent of tar or asphalt in his body. In any event, the Supreme Court has put Fluor Daniel's defense on this issue to rest. The Court has held that medical unanimity is not required among the plaintiff's experts for a jury to draw its own causal conclusions and that experts may testify that there was more than one potential cause of the plaintiff's injuries. Sentilles v.Inter-Caribbean Shipping Corp., 361 U.S. 107, 109, 4 L. Ed. 2d 142, 80 S. Ct. 173 (1959); see also Hines v. Consolidated Rail Corp., 926 F.2d 262, 269 (3d Cir. 1991).

Summary judgment is appropriate only when there exists no genuine issue of material fact in dispute. Fed. R. Civ. P. 56(c). To survive summary judgment, a plaintiff must forecast sufficient evidence supporting his version of a disputed material fact so that a reasonable jury could return a verdict in his favor. Anderson v. Liberty Lobby Inc., 477 U.S. 242, 250, 91 L. Ed. 2d 202, 106 S. Ct. 2505. Anderson defines the sufficiency of the evidence standard as "whether the evidence presents a sufficient

disagreement to require submission to a jury or whether it is so one-sided that one party must prevail as a matter of law." Anderson, 477 U.S. 242, 251, 91 L. Ed. 2d 202, 106 S. Ct. 2505.

The cause of Stephen's injury is, of course, a material fact. Stephen's evidence is sufficient to enable a reasonable jury to return a verdict in his favor.

The trial court has not yet ruled on the admissibility of the Fluor Daniel's experts' opinions, so it would be superfluous to analyze these opinions in detail. Suffice it to say that the substance of their testimony is that they do not know the cause of Stephen's condition, in their terms "etiology unknown."

Clearly there is a genuine issue of material fact that made summary judgment inappropriate. I respectfully dissent because Stephen is entitled to a jury trial.

APPENDIX C

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF SOUTH CAROLINA
CHARLESTON DIVISION

Stephen L. Goewey, a minor, by his next friend, Julie A. Goewey, and Kevin D. Goewey and Julie A. Goewey, both as individuals and as parents of Stephen L. Goewey,	)	
Plaintiffs,	)	Civ. Action No.
vs.	)	2:92-2543-22
United States of America, Fluor Daniel Corporation, FD Services, Incorporated,	)	ORDER
Defendants.	)	

This is an alleged toxic tort case resulting from an infant's accidental exposure to a roofing sealant substance.[1] Plaintiffs assert several claims against the United States of America (hereinafter "the USA") under the Federal Tort Claims Act (hereinafter "FTCA"), 28 U.S.C. § 2671 et seq. Jurisdiction for the FTCA claims is based on 28 U.S.C. § 2346(b). Plaintiffs also assert several claims against Fluor Daniel Corporation, and

[1] Although the sealant has been popularly referred to as "tar" in this litigation, in fact, the Lowe's fibered roof coating at issue in this case is not a coal tar product, but rather is a black, asphalt-based petroleum derivative. Defs' Exh. 40, Attach. 2.

its associated company, FD Services, Incorporated, (collectively "FD"). Jurisdiction as to those claims is based on diversity of citizenship, 28 U.S.C. § 1332, as well as ancillary jurisdiction to the FTCA claims.

The matter came before the court for hearing on January 26, 1995, at which all counsel appeared. Nine separate motions were pending, of which three were dispositive motions.[2] The dispositive motions include:

1. The USA's Motion to Dismiss Plaintiffs' Complaint for Lack of Subject Matter Jurisdiction, filed December 7, 1994;
2. FD's Motion for Summary Judgment on the Issue of Medical Causation, filed December 7, 1994;
3. The USA's Motion for Summary Judgment, filed December 7, 1994.

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[2] The court announced the following rulings as to several of the pending motions:

1. Plaintiff's Motion for Leave to Serve Additional Interrogatories on the United States of America, filed December 16, 1994, DENIED;

2. Plaintiff's Motion to Inspect the Premises and Obtain Sample of Tar, filed December 16, 1994, DENIED at hearing. The basis for the court's ruling is addressed below, supra;

3. Plaintiff's Motion to File Amended Complaint, filed December 16, 1994, DENIED at hearing. The basis for the court's ruling is addressed below, supra.

4. Plaintiff's Motion for Leave to File Response to USA's Opposition to Plaintiff's Motion to File Amended Complaint, filed January 20, 1995, MOOT;

5. Plaintiff's Motion to Cite Additional Authority, filed January 24, 1995, GRANTED.

All other pending motions will be disposed of in this order.

The court has reviewed the voluminous filings,[3] heard argument of counsel, and studied the applicable law. For the reasons given below, the court orders that the USA's Motion to Dismiss is GRANTED, FD's Motion for Summary Judgment is GRANTED; the USA's Motion for Summary Judgment is MOOT, because of the court's dismissal of the claims against the USA on subject matter jurisdiction grounds.[4] The remaining, non-dispositive motion, FD's Motion to Compel, filed January 9, 1995, and taken under advisement at the hearing, is MOOT.

BACKGROUND

The following facts are drawn from the complete record before the court, including the pleadings, affidavits, depositions, and other materials. Where applicable, all inferences are drawn in Plaintiff's favor.

In 1989, one-year old Stephen Goewey, his parents Julie and Kevin Goewey, and his siblings, resided in U.S. Navy housing located at 73 Lafayette Street, Men Riv Housing Project, Charleston Naval Weapons Station, Goose Creek, South Carolina. In August 1989, Julie Goewey made a routine service call to the Navy's Housing Department requesting that someone fix an apparent water leak in a bedroom. The Housing Department issued a work order to FD Services to "Waterproof above and below ground foundation leak." On two occasions

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[3] All the parties to this matter inundated the court with filings and exhibits. Pending motions and all supporting material comprised almost three feet of documents.

[4] Although the court has no subject matter jurisdiction to take up the USA's Motion for Summary Judgment, the court notes that as the USA's Motion is based substantially on the same arguments and evidence relied on by FD in its Motion for Summary Judgment, the court would have reached the same ruling on the USA's Motion, had the court ruled on such motion.

workers for FD Services, a contractor retained by the Navy to perform housing maintenance for the Navy's military housing at that location, responded to the call. The workers applied Lowe's fibered roof coating to the exterior. The workers' customary practice in such cases was to dig a trench down to the foundation and apply roof sealant to the foundation to prevent further water intrusion. They applied sealant to the outer brick wall to a depth of approximately three feet below the ground surface, and several inches above the ground surface. The work was completed by September 5, 1989, and Mrs. Goewey signed off on the worksheet noting the project's completion. Mrs. Goewey knew that some "black stuff", Defs' Exh. 22 at 122, had been applied along the back foundation.

On September 12, 1989, Stephen, his brothers and two other children, were playing in the backyard while Mrs. Goewey was inside the house. Stephen got into a puddle of the sealant, which had exuded from beneath dirt that FD workers had scattered on the ground surface over the sealant. Mrs. Goewey found Stephen sitting on the ground covered in sealant. Although approximately 80-85% of his body was covered in sealant, none was in his mouth, eyes, or ears, and he appeared in no apparent distress. After unsuccessful attempts to remove the sealant with soap and water, Mrs. Goewey had Stephen taken immediately to the Navy Hospital, where the sealant was removed with mineral oil. His skin appeared normal after the tar was removed. For the next few months Stephen appeared perfectly normal and did not require medical treatment other than for a respiratory infection. On January 19, 1990, Mrs. Goewey reported to the Navy Hospital that Stephen appeared to be falling frequently. Plaintiffs contend that Stephen's brief encounter with the roof sealant produced neurotoxic effects of catastrophic proportions, which manifested months after the September 12 event.

Although Plaintiffs have advanced numerous theories of toxic exposure, many of which had been abandoned by the time of the

January 26, 1995, hearing.[5] Plaintiff's current primary theory of liability is that Stephen was exposed to tri-ortho-cresyl phosphate ("TOCP") through the roof sealant, which caused him progressive neurological impairment. To explain why Stephen did not manifest symptoms of the toxic exposure earlier, Plaintiffs assert that the TOCP compound produced a delayed toxic reaction described as an organo-phosphate induced delayed neuropathy ("OPIDN").

I. The USA's RULE 12(B)(1) MOTION TO DISMISS

A. STANDARD OF REVIEW

Plaintiffs bear the burden or persuasion if subject matter jurisdiction is challenged under Rule 12(b)(1). Williams v. United States of America, ___F.3d___, 1995 WL 137446 (4th Cir. 1995), Kehr Packages, Inc. v. Fidelcor, Inc., 926 F.2d 1406, 1409 (3d Cir.), cert. denied, 501 U.S. 1222, 115 L. Ed. 2d 1007, 111 S. Ct. 2839 (1991) ("the party who sues the United States bears the burden of pointing to . . . an unequivocal waiver of immunity"). In ruling on a Rule 12(b)(1) motion, the court may consider exhibits outside the pleadings. Williams, 1995 WL 137446. Indeed, "the trial court is free to weigh the evidence and satisfy itself as to the existence of its power to hear the case." Id. The court's consideration of materials outside the pleadings, such as affidavits, depositions, or live testimony, does not convert the Rule 12(b)(1) motion into a motion for summary judgment. Adams v. Bain, 697 F.2d 1213, 1219 (4th Cir. 1982).

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[5] Plaintiffs' original theory of recovery, repeated throughout the complaint, is that Stephen was injured as a result of his alleged exposures to Chlordane and Heptachlor, which are used in pest control. However, Plaintiffs have abandoned this claim. Similarly, Plaintiffs have abandoned their claim that the Navy Hospital improperly removed the sealant, farther contributing to his alleged exposure.

B. DISCUSSION

The parties submitted a voluminous record on the Navy's contract with FD, FD's responsibilities, the Navy's inspection of FD's work, and the repair work executed at Plaintiffs' residence. After examining the record, the court finds the following facts material to the ruling on the USA's Motion to Dismiss.

Federal acquisition regulations permit the Navy to delegate responsibility for family housing maintenance to contractors. Defs' Exh. 3 at 93. Pursuant to industrial study findings showing that the Navy could most economically accomplish this function through delegating family housing maintenance responsibility to a contractor, the Navy delegated responsibility to a contractor such as FD. Id.

The maintenance contract at issue here, N62467-86-D-0402, was awarded to FD on September 17, 1986, and was effective from October 1, 1986. The Navy awarded this contract under a so-called "source selection procedure," which is calculated to lower costs, ensure higher quality, and avoid contract administration difficulties. Decl. of Anonie, Defs' Exh. 5 at P 6. Under source selection procedure the Navy may conduct random inspections of the contractors' work, and deduct payments based on the percentage of unsatisfactory work encountered.

Men Riv residents placed work orders by calling the Navy Housing Office. The Housing Office generated a work order ticket. The work ticket contained a description of the complaint. Although the function of the work ticket was not to direct the manner in which FD performed the work, on occasion the ticket might contain a description of the recommended procedure, particularly where, as here, FD had already responded to previous water intrusion complaints by digging a trench and applying roof sealant. FD had ultimate authority to decide what work would be done, and to supervise the necessary work. Defs'

Exh. 3 at 74; Defs' Exh. 5 at P 8; Defs' Exh. 12 at 21. Importantly, FD employees were instructed not to take instructions from Navy inspectors or Housing Office personnel. Defs' Exh. 18 at 39.

FD Services was required under the contract to "furnish all personnel, supervision, management, equipment, materials, parts, tools, transportation and supplies . . " for the work. Defs' Exh. 6 at §§ C.2 & H.13. FD hired its own workers, who received all employment benefits, compensation, and other benefits from FD. Defs' Exh. 18 at 38; Defs' Exh. 19 at 40.

Several contractual provisions established that FD was responsible for managing the total work product, see Defs' Exh. 6, §§ C.2 ("administration, operation, equipment installation, maintenance, repair, alteration and work in the primary functional areas"), C.10 ("the Contractor is responsible for managing the total work effort associated with the maintenance and other services"), C.11 ("Contractor is responsible for implementing all necessary work control procedures to ensure timely accomplishment of work requirements, as well as to permit tracking of work in progress."), H.9 ("Contractor is responsible for planning and scheduling work to assure material and labor is available to complete work requirements within the response times and in conformance with the quality standards established herein)."

FD performed quality control tasks whereas the Navy performed some quality assurance tasks. Defs' Exh. 5 at § 8; Defs' Exh. 6 at § C.7 ("it is to be emphasized that the Government's Quality Assurance Program is not a substitute for the Quality Control program implemented and administered by the Contractor"). FD inspectors conducted post-project completion quality control inspections in all cases, Defs' Exh. 7 at 44, whereas the Navy selected only a small random sample of work orders for inspection, which could be done either by

visiting the site or telephoning the resident. Defs' Exh. 3 at 79; Defs' Exh. 7 at 33. The Navy employed Contract Surveillance Representatives (CSRs) to inspect the contractors' work. CSRs did not, however, direct or supervise FD workers, and were not usually present when the work was performed. If present, however, their intervention was limited to work situations presenting a dangerous, life-threatening situation. Defs' Exh. 5 at § 8. Otherwise, they had to report unacceptable work to the FD Project Manager. Appointment letters for CSRs, given to CSRs upon hiring, instructed, in part:

> You have no authority to direct or interfere with the methods of performance by the contractor or to issue instructions directly to any contractor or personnel, unless the methods being used present a safety hazard. . . . You are not to tell the contractor how to perform . . . . In administering the contract, your function is surveillance, not supervision.

Defs' Exh. 5 at Att. A, HW02054-2055.

Following Mrs. Goewey's call concerning the water leak, the Housing Office issued a work ticket to FD to "waterproof above and below ground foundation leak." Defs' Exh. 16. An FD employee repaired the leak on August 30, 1989, by sealing the foundation with roof sealant. Defs' Exh. 14 at 38. No CSRs or other Navy representatives were present. FD supervisors instructed the worker in the application of roof sealant. Defs' Exh. 14 at 59; Defs' Exh. 18 at 43; Defs' Exh. 19 at 42. FD workers paid a second visit to the site on September 5, 1989, in an effort to improve the physical appearance of the foundation. Defs' Exh. 15 at 56. Again, no Navy representatives observed the work, and the workers were supervised by an FD supervisor. A CSR conducted a random telephone inspection of this work order. Defs' Exh. 11 at 10.

Plaintiffs' first theory of liability under the FTCA is that the

USA is liable for the acts or omissions of its agent or employee, allegedly FD. Plaintiffs attempt to show that Navy CSRs engaged in discussions among themselves and with FD workers as to the solution to the water intrusion problem, and that these discussions somehow constituted specifications to FD as to the manner of performing the work. However, the overall testimony of the witnesses does not support such a conclusion. Defs' Exh. 46, Haynes Depo., at 18, 19, 52-53, 73; Defs' Exh. 48, Harkleroad Depo., at 10-12; 26, 29; 41. Importantly, Plaintiff has not produced any evidence disputing the conclusion that FD employees specifically selected the roof sealant to effect repairs, and it is the sealant which is at the heart of this lawsuit. Defs' Exh. 48, Harkleroad Depo., at 24; Defs' Exh. 14, LeCraw Depo. at 100; Defs' Exh. 15, Anderson Depo., at 58. Nor does the record support a conclusion that CSR Haynes conducted a safety inspection of the site.[6] The court finds Haynes' testimony conflicting in many respects, and illustrative of some conlusion on Haynes' part as to the occasion on which he attended the site, and what work was being performed. However, even assuming the accuracy of Plaintiffs' version of events concerning Haynes' visit to the site, it is clear that Haynes saw no roof sealant being applied, and his intervention rights were limited to life-threatening situations. Therefore, the undisputed facts establish that Haynes' brief inspection of work was consistent with the fall contractual delegation of safety to FD, with a

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[6] Plaintiffs' response to the USA's Motion to Dismiss contends that Haynes inspected the job on three occasions. They assert that at the first time he visited the site, Haynes saw a five gallon bucket with tar. The court has reviewed Haynes' testimony and finds numerous inconsistencies. Haynes' account of the work in progress conflicts with the testimony of the workers who performed the job, and his description of his first visit to the site appears to be a visit coinciding with the installation of the french drain (rather than the sealant application). Further, even Haynes admitted that his memory of the work and inspections at 73 Lafayette was unclear. Defs' Exh. 46 at 4445. Therefore, the court is unpersuaded that Haynes conducted a safety inspection.

reservation of limited intervention rights only in life threatening situations.

Where sovereign immunity has been waived, the FTCA allows actions for damages against the United States for injuries caused by tortious conduct of United States agents or employees acting within the scope of their employment. 28 U.S.C. § 1346(b). The FTCA is strictly construed, and all ambiguities are resolved in favor of the United States. Radin v. United States, 699 F.2d 681 (4th Cir. 1983). Exceptions to immunity are narrow. United States v. S.A. Empresa de Viacao Aerea Rio Grandense (Varig Airlines), 467 U.S. 797, 81 L. Ed. 2d 660, 104 S. Ct. 2755 (1984). The limited waiver of the government's sovereign immunity is restricted to acts or omissions of agents or employees of the government. 28 U.S.C. § 2671. The FTCA contains no waiver of sovereign immunity for the acts or omissions of independent contractors. In determining whether an actor is an independent contractor versus an agent of the government, the material consideration is the terms of the contract defining the relationship between it and the United States. Williams v. United States, ___F.3d___, 1995 WL 137446 (4th Cir. 1995); Wood v. Standard Prods. Co., 671 F.2d 825 (4th Cir. 1982). In this case, FD's classification as an independent contractor or as an agent or employee of the United States is an issue resolved by federal, not state, law. Logue v. United States, 412 U.S. 521, 37 L. Ed. 2d 121, 93 S. Ct. 2215 (1973).

In Logue v. United States, 412 U.S. 521, 37 L. Ed. 2d 121, 93 S. Ct. 2215 (1973), the Supreme Court noted that the FTCA recognized the distinction between an actor's liability for its own employees' actions, and its non-liability for the actions of a party with whom the employer contracts. Id. at 528. The distinction turns on the actor's authority to control the physical conduct of the purported independent contractor. Applying that principle, the Court in Logue found a state jail an independent contractor

of the United States because the United States had "no authority to physically supervise the conduct of the jail's employees." Id. at 530. Importantly in Logue the Court found that the United States' right to inspect the jail and demand compliance with federal regulations did not transform the jail into an agent of the United States.

Similarly, in United States v. Orleans, 425 U.S. 807, 48 L. Ed. 2d 390, 96 S. Ct. 1971 (1976), the Court reaffirmed the Logue test of physical control and held that a community agency funded under a federal act was not a federal agent for purposes of the FTCA. Because no evidence showed the United States had the power to "control the detailed physical performance of the contractor," id. at 814, the Court found independent contractor status notwithstanding that the United States set specific conditions to implement federal objectives and compelled compliance with federal standards.

In a recent Fourth Circuit case addressing the import of Logue and Orleans, the court, Judge Hamilton writing, observed:

> Read together, Logue and Orleans establish the principle that the United States will not be liable under the independent contractor exception of the FTCA by virtue of entering contracts and demanding compliance with federal standards, unless the United States actually supervises the "day-to-day operations" of the endeavor. . . . The First Circuit succinctly explained this rubric in opining that "the right to inspect does not nullify the general rule that the government is not liable for torts of independent contractors. " . . . . As we noted previously in Wood, determining whether the responsible party was an independent contractor or an agent or employee of the United States hinges on "the primary activity contracted for and not the peripheral, administrative acts relating to such activity."

Williams v. United States, ___F.3d___, 1995 WL 137446 (4th Cir. 1995) (citations omitted). The court in Williams cited with approval cases finding no governmental liability under the FTCA, even where the United States "acted generally as an overseer," see Leone v. United States, 910 F.2d 46 (2d Cir. 1990), where the United States "owned and controlled" the premises on which the challenged conduct occurred, see Larsen v. Empresas El Yunque, Inc., 812 F.2d 14 (1st Cir. 1986), or where the United States had a significant role in supervising the activities leading to the plaintiff's injuries, see Kramer v. United States, 843 F. Supp. 1066 (E.D. Va. 1994).

In Williams, the plaintiff brought a slip and fall claim against the Government for injuries sustained in the lobby of a federal building. The Government impleaded the third-party defendant Meridian Management Corporation, which had a contract with the United States to perform custodial and maintenance services in the building. In affirming the trial judge's determination that Meridian was an independent contractor, the Fourth Circuit relied primarily on the contractual provisions governing day-to-day maintenance.

In this case, numerous contractual provisions, cited above, provided that FD had sole responsibility for day-to-day maintenance. After exhaustive discovery, Plaintiffs have been unable to put forward any consistent, reliable evidence that day-to-day maintenance was handled by the Navy Housing Office. Accordingly, the court finds Williams factually similar, and therefore, legally controlling of Plaintiffs' FTCA claims based on the negligence of FD. Accordingly, the court holds that FD was an independent contractor, and thus the United States was not liable for FD's alleged tortious conduct. Any allegations of such tortious conduct are dismissed pursuant to Rule 12(b)(1).

Plaintiffs' second asserted basis of FTCA liability challenges the Navy's decision to delegate responsibility for maintenance to

FD. Plaintiffs' also challenge the USA's decisions regarding the Navy's inspections, and assert that the Navy failed to inspect its contractor's work properly, or failed to give adequate warning of the open trench danger, which Plaintiffs suggest one Navy employee, Haynes, observed. The court finds both asserted bases of liability barred by the discretionary function exception to the FTCA.

The discretionary function exception to the FTCA, 28 U.S.C. § 2680(a), provides that the United States is not liable for:

> any claim based upon an act or omission of an employee of the Government, exercising due care, in the execution of a statute or regulation, whether or not such statute or regulation be valid, or based upon the exercise or performance or the failure to exercise or perform a discretionary function or duty on the part of a federal agency or an employee of the Government, whether or not the discretion involved be abused.

In United States v. Gaubert, 499 U.S. 315, 113 L. Ed. 2d 335, 111 S. Ct. 1267 (1991), the Court stated the test for application of the discretionary function exception. First, the exception will apply only to those acts or omissions that are discretionary in nature. Thus, if the conduct is prescribed by statute or regulation, the exception is inapplicable. Second, the exception protects only those actions based on considerations of public policy.

In Williams the Fourth Circuit found that the discretionary function exception barred plaintiff's claims that the USA was negligent in engaging the contractor, in inspecting the premises, and in failing to post warning signs when it knew of the floor's dangerous condition. The court found both prongs of the Gaubert test satisfied, in that no prescribed course of conduct governed engaging maintenance services, and that the

Government's decision to engage the contractor was grounded in policy because the Government had balanced the competing needs and expenses of such proposal. Furthermore, the court in Williams also found the plaintiff's allegations concerning negligent inspection and failure to post warning signs precluded by the discretionary function exception because "these decisions are embraced by the overarching decision to engage [the contractor]." Id. See also Kiehn v. United States, 984 F.2d 1100, 1103 (10th Cir. 1993) ("the decision whether or not to post warning signs . . . is clearly discretionary as it involves an element of judgment or choice.").

Plaintiffs in the present case argue three similar bases for relief. Applying these factors to the present matter, the court finds that the United States' decision, through the Navy, to delegate responsibility for maintenance to FD is the type of governmental, discretionary, policy-based decision-making that the discretionary function exception removes from liability. First, the Navy's delegation of responsibility for maintenance services here, as in Williams, is not prescribed by statute or regulation. Rather, the Federal Acquisition Regulations (FARs) do not prescribe a course of conduct, but impart to the USA discretion to exercise judgment in the choice of maintenance contractors. Second, the decision to engage FD was grounded in policy because in contracting with FD the United States, relying on industrial studies, balanced the competing needs and expenses of engaging a contractor. Thus, the Navy's decision was based on economic policy considerations involving the best allocation of Navy personnel and resources. Defs' Exh. 3 at 93-94. Accordingly, any allegation by Plaintiff that the USA was negligent in engaging FD is barred by the discretionary function exception.

Plaintiffs' claim that the Navy's inspection or failure to post signs were negligent is barred by the same exception. See, e.g., Childers v. United States, 40 F.3d 973 (9th Cir. 1994)

(discretionary function exception protects the Government's decision regarding placing signs on trails in National Park). Under the contract, FD provided maintenance to over 2,000 housing units, generating about 4,000 service calls a month. The Navy did not have personnel or resources to conduct inspections of all calls. Defs' Exh. 5 at Para. 9; Defs' Exh. 7 at 89; Defs' Exh. 8 at 45; Defs' Exh. 11 at 17. Plaintiffs have failed to establish that any federal statute or regulation controls how the Navy should supervise its contractors, which necessarily leaves the matter one of judgment, or discretion, by the government. Moreover, the Navy's random inspection procedure, which is part of the source selection procedure, grew out of an economic policy-based decision to preserve government personnel and finances. Accordingly, the court finds the Gaubert factors satisfied. Those portions of Plaintiffs' claims based on alleged negligent inspection or failure to warn are, as in Williams, barred by the discretionary function exception.

In sum, therefore, the court finds all of Plaintiffs' claims under the FTCA barred under either the independent contractor exception or the discretionary function exception. Accordingly, all claims against the USA are dismissed.

II.RULE 56 MOTION FOR SUMMARY JUDGMENT BY FD

A. STANDARD OF REVIEW

Summary judgment is appropriate "if the pleadings, depositions, answers to interrogatories, and admissions on file, together with the affidavits, if any, show that there is no genuine issue as to any material fact and that the moving party is entitled to a judgment as a matter of law." Fed. R. Civ. P. 56(c). It is well-established that summary judgment should be granted "only when it is clear that there is no dispute concerning either the facts of the controversy or the inferences to be drawn from those facts." Pulliam Inv. Co. v. Cameo Properties, 810 F.2d 1282 (4th

Cir. 1987).

The party moving for summary judgment has the burden of showing the absence of a genuine issue of material fact, and the court must view the evidence before it and the inferences to be drawn therefrom in the light most favorable to the nonmoving party. United States v. Diebold, Inc., 369 U.S. 654, 8 L. Ed. 2d 176, 82 S. Ct. 993 (1962). When the defendant is the moving party and the plaintiff has the ultimate burden of proof on an issue, the defendant must identify the parts of the record that demonstrate the plaintiff lacks sufficient evidence. The nonmoving party, here Plaintiff, must then go beyond the pleadings and designate "specific facts showing that there is a genuine issue for trial." Fed. R. Civ. P. 56(e); Celotex Corp. v. Catrett, 477 U.S. 317, 91 L. Ed. 2d 265, 106 S. Ct. 2548 (1986). A dispute about a material fact is not "genuine" unless the evidence taken as a whole is such that a rational jury could return a verdict for the opposing party. Id. While a party opposing summary judgment is entitled to all reasonable inferences in its favor, an inference is only reasonable if it is plausible and the evidence is such that a rational jury, given the entire record, could draw that inference. Id. The trial court should grant summary judgment against a party who has failed to make a showing sufficient to establish the existence of an essential element of the party's case, and upon which that party bears the burden of proof at trial. Celotex, 477 U.S. at 322.

B. DISCUSSION

FD moves for summary judgment on the grounds that Plaintiffs have failed to produce any reliable evidence of a causal connection between Stephen Goewey's brief contact with the roof coating on September 12, 1989, and his subsequent development of progressive neurological impairment. FD argues that it is entitled to summary judgment on two independent grounds. First, FD contends that Plaintiffs' medical testimony on

the causal connection is so uncertain, conflicting and speculative that it fails to satisfy the required degree of certainty for admission into evidence and, therefore, summary judgment is appropriate. In addition, FD contends that when this court performs its "gatekeeping role" as to the admissibility of Plaintiffs' expert testimony, Daubert v. Merrell Dow Pharmaceuticals, Inc., 125 L. Ed. 2d 469, 113 S. Ct. 2786, 2798 (1993), it will be apparent that Plaintiffs' case rests on unproven methodology, unfounded assumptions, erroneous data, conjecture and speculation. Accordingly, FD contends that such expert testimony fails to meet the twin Daubert objectives of relevancy and reliability and, therefore, would be barred at trial.

As to FD's first argument regarding the speculative nature of Plaintiffs' expert testimony, the following principles apply. Under South Carolina law, a plaintiff in a negligence action has the burden of proving that the injury was caused by the actionable conduct of the particular defendant. Ryan v. Eli Lilly & Co., 514 F. Supp. 1004 (D.S.C. 1981). Where a medical causal relation issue is not one within the common knowledge of the layman, proximate cause cannot be determined without expert medical testimony. Ellis v. United States, 484 F. Supp. 4 (D.S.C. 1978). Expert testimony is admissible on the question of a causal connection between the plaintiff's injuries and the acts of the defendant only if the expert testifies that, taking into consideration all data, it is his professional opinion that the result in question "most probably" came from the cause alleged. Baughman v. American Tel. & Telegraph, 306 S.C. 101, 410 S.E.2d 537 (1991) (in suit by property owners against refinery operator for injuries from alleged pollution, Supreme Court affirmed grant of summary judgment where trial judge found expert's opinion did not satisfy the required causal showing of "most probably").

Second, with respect to FD's argument concerning the lack of reliability of Plaintiffs' expert evidence, the following principles

apply. An expert may only testify about "scientific, technical, or other specialized knowledge" that "will assist the trier of fact to understand the evidence or to determine a fact in issue." Fed. R. Evid. P. 702. The Supreme Court indicated in Daubert v. Merrell Dow Pharmaceuticals, Inc., 125 L. Ed. 2d 469, 113 S. Ct. 2786 (1993), that to qualify as scientific knowledge that assists the trier of fact, scientific evidence must be "reliable." Id. at 2795. To gauge reliability, trial courts should take into account, inter alia, whether the evidence has been published and subjected to peer review, whether it has been tested and verified, whether its rate of error is high, and whether it has been generally accepted in the scientific community. Id. at 2796-97.

As noted above, Plaintiffs' current theory of liability is of an acute toxic exposure to the organo-phosphate known as tri-ortho-cresyl phosphate (TOCP), a compound which produces a delayed toxic reaction known as "OPIDN," an organo-phosphate induced delayed neuropathy. To prove causation by FD, Plaintiffs rely on the testimony of the following expert witnesses:

(1) Lorne K. Garrettson, M.D. (treating physician);

(2) Mohamed Abou-Donia, Ph.D. (research scientist);

(3) Robert K. Simon, Ph.D. (chemist, toxicologist);

(4) Peter G. Bernad, M.D. (neurology);

(5) David Hartman (neuropsychologist).

The following is a summary of the testimony offered by each of those witnesses.

(1) Dr. Garrettson, an associate professor of pediatrics at Emory University School of Medicine, is a treating physician

from whom Plaintiffs seek expert opinion on causation. Dr. Garrettson considered several possible toxic exposures that could account for Stephen's condition, including chlordane (pesticide) poisoning, roof coating, TOCP, and chlorpyrifos (pesticide). After dismissing several of those theories, Dr. Garrettson opined that Stephen was probably poisoned by TOCP. Dr. Garrettson admitted that TOCP is not normally in roof coating, and would have had to have been added in the present case. In fact, the FD workers involved in applying the roof coating to the foundation of the Goewey residence testified that they did not add anything to the roof coating used to seal the foundation of the house. Defs' Exh. 14 at 106; Defs' Exh. 15 at 120. Dr. Garrettson admitted that he has no actual knowledge that TOCP was added to the sealant, and that this theory was only a "possibility." Defs' Exh. 39 at 76. In addition, the manufacturer of the sealant used in this case, Monsey Products Co., has never used TOCP as an ingredient in its sealant, Defs' Exh. 40.

After reviewing his testimony, the court finds Dr. Garrettson's opinion is not sufficiently definite under Baughman to be admissible. Dr. Garrettson posited four separate theories of causation, only one of which (TOCP) could result in liability for FD. Even if Dr. Garrettson's testimony can be construed as advocating TOCP as the leading suspect or culprit, Plaintiffs have failed to adduce any evidence that TOCP was in the roof sealant. In fact, all the evidence points to a contrary conclusion. Accordingly, Dr. Garrettson's opinion on TOCP exposure is based on theoretical speculation and a fact not in evidence (i.e., that TOCP was in the sealant).

(2) Dr. Abou-Donia is a research scientist who is engaged in research on adult chickens in order to study the delayed onset (OPIDN) of the neurotoxic effects of TOCP exposure. He does no work on humans, and performs strictly laboratory research. Based on a blood test he administered to Stephen, which had never previously been administered on a human, Dr. Abou-Donia

opined that Stephen's blood was consistent with a degenerative neurological process, such as that caused by exposure to TOCP.

Dr. Abou-Donia's opinions on the neurotoxic effect of TOCP in humans is extrapolated from his work on TOCP exposure in chickens and his study of literature of human cases. Even if one credits as scientifically sound his extrapolations from fowl to human, his laboratory work indicates that the latency period for TOCP exposure in chickens is from 6 to 14 days, and in humans it is a matter of weeks, not months. Here, Stephen did not begin manifesting symptoms of disease until several months after the September 12 incident, a fact which would militate against a finding of TOCP exposure on September 12. Thus, Dr. Abou-Donia's own research on the results of TOCP poisoning do not support a finding of TOCP exposure on September 12. Moreover, the court finds no scientific credibility in the test of Stephen's blood performed for the purpose of detecting phosphorylated neurofilaments. Again, Dr. Abou-Donia's conclusions are extrapolated from his work on chickens. Because the test has never been performed on a human before, has not been published or exposed to peer review, and has been criticized by another one of Plaintiffs' experts, Dr. Bernad, Defs' Exh. 42 at 202-203, it cannot meet the threshold test of reliability under Daubert and therefore, may not be considered probative of causation.

(3) Dr. Robert K. Simon is a scientist who considers himself an expert in industrial hygiene, chemistry, toxicology, pesticides, and other areas. He was initially retained by Plaintiffs' counsel to test the 71 and 73 Lafayette residences for pesticides, which, as noted earlier, was Plaintiffs' original theory of liability. After his survey, Dr. Simon initially felt pesticides were the culprit, although he later shifted that opinion to TOCP exposure after receiving some reading materials from another of Plaintiffs' experts, Dr. Hartman. Although Dr. Simon attempted to analyze a shirt worn by Mrs. Goewey on the day of the incident for trace

elements of TOCP, his results were inconclusive, Defs' Exh. 44 at 1-2 ("while both methods indicated that TOCP could be present, the trace quantities found in each method, and the presence of potential interfering substances, . . . , have decreased our confidence in the result.")

The court notes at the outset that Dr. Simon is not a physician, or one trained in diagnosing patients. The Sixth Circuit Court of Appeals has affirmed one district judge's refusal to admit Dr. Simon's opinions on the issue of medical causation. Conde v. Velsicol Chem. Corp., 804 F. Supp. 972 (S.D. Ohio 1992), aff'd, 24 F.3d 809 (6th Cir. 1994). Similarly, in this case, Dr. Simon is unable to cite any specific scientific or medical literature to support his assertions that Stephen's symptoms are consistent with toxic exposure. The methodology of his test performed on the shirt Mrs. Goewey had been wearing on the day of the incident (which test was performed after the shirt had already been laundered several times) is not sufficiently reliable to be admissible on the issue of causation.

(4) Dr. Peter Bernad is a neurologist who has worked in the field of insecticides and pesticides. He admitted the present case was a difficult one to diagnose. Defs' Exh. 42 at 188. Although Dr. Bernad is unable to point to any one chemical as the cause of Stephen's problems, he proposes a theory of a "hypoxic ischemic event" in which he speculates that Stephen was "asphyxiated." Defs' Exh. 42 at 75, 125. However, he acknowledges that if Stephen's face was not actually in the sealant, but he merely put some sealant on his face by playing with his hands, then the asphyxiation theory was invalid. In the present case, the undisputed evidence, including the evidence of Mrs. Goewey, is that Stephen got the sealant on his face by touching it with his hands. J. Goewey Depo. at 261. Stephen was found sitting up in the sealant, alert, oriented and breathing normally. Thus, there is absolutely no evidence to support Dr. Bernad's "hypoxic ischemic event," and Dr. Bernad flatly rejects the contention that

Stephen's condition is consistent with TOCP exposure. Defs' Exh. 42 at 105.

The court finds Dr. Bernad's testimony insufficiently definite to constitute reliable evidence on causal connection. His testimony is speculative and conjectural, and his "conclusions," to the extent he makes any, are based on facts not supported by the record. Accordingly, Dr. Bernad's testimony would not be admissible under Rule 702 and may not provide evidence of causation.

(5) Dr. David Hartman, a neuropsychologist, has been retained by Plaintiffs as a "wrap up" expert to provide an "overview" of the other experts testimony. Dr. Hartman testified in terms of four "possibilities" for Stephen's condition, including "tar," "TOCP," a "phradine compound", or a "toxic soup kind of a compound." Defs' Exh. 60. The problem with Dr. Hartman's theory is that it focuses primarily on chemicals not found in the sealant at issue in this case.

For example, Dr. Hartman's theory of pyridines exposure in the tar will not survive Daubert analysis. The research that purports to establish a connection between pyridines exposure and certain disorders of the nervous system (chiefly Parkinson's disease), consists of a handful of articles and is based on experimental studies injecting MPTP, a pyridine derivative, into potatoes and mice. In the first place, it should be noted that Stephen has never manifested Parkinson's-like symptoms, and therefore, the relevancy of any pyridines-Parkinson's connection is absent in this case.

Dr. Hartman's attempt to unite the proposed different possibilities of causation postulated by Plaintiffs' experts under one umbrella by insisting that they "are really saying one thing over all" is insufficient to establish causation under Baughman. What is obvious is that significant inconsistencies appear among

Plaintiffs' experts' testimony. Where so many inconsistencies emerge from one side, the court must conclude that Plaintiffs are merely speculating as to causation.

The court cannot reconcile Dr. Garrettson's TOCP theory with Dr. Bernad's statement that Stephen's condition is not consistent with exposure to TOCP "from a neurologic point of view." Defs. Exh. 39 at 105. Nor can the court reconcile Dr. Bernad's hypoxia theory with Dr. Hartman's opinion that no behavioral data or clinical evidence supported the hypoxic theory. Defs. Exh. 60 at 344-347. Finally, the court cannot reconcile Drs. Garrettson and Bernad's admissions that nothing known to exist in the tar could cause Stephen's problems with Dr. Hartman's testimony that the tar contains pyridines that could have caused the problem. To allow Plaintiffs to cumulate their mutually contradictory conclusions to equal a "more likely than not" explanation would be unjust. Where expert testimony is relied upon to link physical injury to causation, the witnesses' testimonies may not contradict each other on essential points. Dill v. Scuka, 279 F.2d 145, 147-48 (3d Cir. 1960). The rationale behind such a policy is that the fact finder should not be required to guess between contradictory conclusions.

As further support for the court's determination that Plaintiffs have failed to carry their burden of proof on causation, the court notes that Plaintiffs have not only failed to produce evidence that establishes their theory or multiple theories of liability, but have also failed to rule out all other inconsistent conclusions. For example, medical testimony establishes that Stephen has a condition the cause of which is unknowable between 40-50% of the time. Defs' Exh. 61 at 145; Defs' Exh. 62 at 60; Defs' Exh. 63 at 56; Defs' Exh. 64 at 18-19. The scientifically unreliable evidence offered by Plaintiffs, which in itself is contradictory, cannot overcome the conclusion that Stephen's condition is one ascribed as etiology unknown, as numerous treating physicians have concluded, Defs' Exhs. 31 at 22 (Stearns, Navy neurologist)

(Stephen diagnosed as having "progressive ataxia of undetermined etiology"); Defs' Exh. 32 at 36 (Morales, Bethesda Naval Hospital) unknown etiology); Defs' Exh. 34, (DeLong, Pediatric Neurology, Duke University Medical Center) (progressive diplegia of unknown etiology); Defs' Exh. 36 at 38, (Barbosa, Director of Pediatric Neurology, Medical University of South Carolina) (no known cause of Stephen's neurological illness and it is not uncommon to find patients who present with a neurologic disease process that has no known cause). While all these treating physicians were informed of the September 12 incident, not one thought it the likely cause of Stephen's problems, several resoundingly rejected the notion, and Dr. DeLong, Chief, Division of Pediatric Neurology, at Duke University Medical Center "reviewed the world's literature, including a Medline search, and have not found anything that would be similar to Stephen's condition." Defs' Exh. 33 at 34.

The Court's determination above that Plaintiffs' experts fail to produce reliable evidence of causation is reinforced by a recent Fourth Circuit case. In a case markedly similar to the present, Carroll v. Litton Systems, Inc., 47 F.3d 1164 (4th Cir. 1995), the plaintiffs, persons who had obtained their drinking water from private wells, brought a claim against a manufacturer who had allegedly contaminated with trichloroethane (TCE) groundwater at a plant site and surrounding wells between 1967 and 1974. On the manufacturer's motion for summary judgment, the district judge concluded that the testimony of the plaintiffs' expert Moore that defendant's TCE entered the residential wells in 1970 was inadmissible under Rule 702. Further, the district judge also found inadmissible the plaintiffs' expert Spencer's testimony on the amount of TCE in plaintiffs' wells since 1970. The court granted summary judgment. The Fourth Circuit affirmed the district judge's rulings on those issues. In finding Moore's testimony unreliable, the Court of Appeals noted that the expert's opinion was not based on any evidence that TCE had seeped into the wells in those years. With regard to Spencer's

testimony concerning the concept of environmental half-life for TCE, the court noted that his approach was rejected by his peers, and subject to an extremely high rate of error. Accordingly, the court concluded that the testimony of both witnesses, as well as the testimony of three physicians who relied, in part, on Spencer's calculations, was not sufficiently reliable.

III. PLAINTIFFS' MOTION TO INSPECT PREMISES AND OBTAIN SAMPLE OF TAR

The present case is one of the oldest cases on the court's docket and has previously been the subject of numerous scheduling order extensions. Pursuant to the court's Amended Scheduling Order, filed August 12, 1994, discovery was to be completed no later than November 15, 1994, and the cut-off date for filing dispositive motions was set as December 7, 1994. On December 16, 1994, one week after the USA and FD's dispositive motions (addressed above) had been filed, and almost two months after first learning of the possibility of tar remaining in the ground at the former Goewey residence, Plaintiffs moved to be allowed to dig a trench on the subject site and obtain a tar sample. Plaintiffs' brief states that at the deposition of Ray Lee on October 18, 1994, Plaintiffs first learned that tar at 73 Lafayette had been removed only to the level of a french drain, and that therefore, some tar might still be in the ground. Plaintiffs hoped to have their retained expert, Dr. Simon, a chemist (addressed above), conduct testing for TOCP traces. Defendants opposed the testing.

Although the court might have been more sympathetic to Plaintiffs' request had it been submitted on a timely basis after Plaintiffs first learned of the possible remaining tar on October 18, 1994, the court must deny the request at this late stage. The court has several reasons for denying Plaintiffs' motion.

The first reason is that Plaintiffs have waited too long. The

dilatoriness attached to Plaintiffs motion, and the disruption and prejudice such testing would cause to the parties and court's calendar are significant considerations, especially in an aged case. After Plaintiffs had reviewed Defendants' dispositive motions, and presumably seen the weaknesses in their causation evidence, Plaintiffs sought to re-open discovery and collect evidence to buttress their TOCP theory. To allow Plaintiffs to conduct farther testing now would delay the court's ruling on the nearly three feet of pending motions, including the dispositive motions, and would necessitate a continuance of this case beyond the scheduled May 1995 term of court.

A scheduling order is not a frivolous piece of paper, idly entered, which can be cavalierly disregarded by counsel without peril. Johnson v. Mammoth Recreations, Inc., 975 F.2d 604, 610 (9th Cir. 1992). Although the court would be justified in denying Plaintiffs' motion on this basis alone, the court also finds the motion meritless because the proposed tar testing is inherently suspect.

The sample of tar, if, indeed, any is to be found, cannot provide scientifically reliable and legally relevant data at this time. Any tar remaining in the ground for five years has been subjected to environmental degradation, including Hurricane Hugo. Expert testimony, see Exh. 1, & Exh. 2, FD's Memo In Opposition to Plaintiffs' Motion to Inspect Premises and Obtain Tar Sample, establishes that a reliable sample would need to be in a well-closed container, unexposed to the environment. Plaintiffs intend to have Dr. Simon, the chemist previously found by the court to be unqualified to testify as to medical causation, analyze the sample. Dr. Simon proposes to use gas chromatography, a testing method he previously used on Mrs. Goewey's shirt. In that case, the results of TOCP traces were inconclusive. Test results on a five-year old unpreserved tar sample that has withstood time, the elements, and a hurricane, could scarcely be more reliable than the earlier test of the shirt,

or present less rate of error. The court concludes the proposed testing would not be sufficiently reliable to pass muster under Daubert and therefore, Plaintiffs' Motion to Inspect Premises and Obtain Tar Sample is denied.

IV. PLAINTIFF'S MOTION TO AMEND

Rule 15(a) of the Federal Rules of Civil Procedure provides that after a responsive pleading has been served, "a party may amend the party's pleading only by leave of court or by written consent of the adverse party; and leave shall be freely given when justice so requires." However, leave to amend should be denied on the ground of futility when the proposed amendment is clearly insufficient because of substantive or procedural considerations. Davis v. Piper Aircraft Corp., 615 F.2d 606, 613 (4th Cir.), cert. dismissed, 448 U.S. 911 (1980); McDermott, Ltd. v. Moretz, 898 F.2d 418, 421 (4th Cir. 1990) (upholding district court's refusal to allow amendment asserting fraudulent misrepresentation counterclaim because it would have been subject to dismissal under Rule 12(b)(6)). A motion to amend may be denied based on "a showing of prejudice, bad faith, futility, or dilatoriness associated with the motion." Sandcrest Outpatient Serv. v. Cumberland City Hospital, 853 F.2d 1139, 1148 (4th Cir. 1988).

Again, the court notes that this is one of the oldest cases on this court's docket. Because Plaintiffs' theory of recovery has changed repeatedly through the discovery process, Plaintiffs' Complaint still contains many abandoned theories of recovery. As long ago as October 8, 1993, counsel for the United States requested that Plaintiffs amend their complaint to reflect their changing theories and allegations. See Declaration of J. Brennan, Attach. A, USA Opp. to Pltfs.' Motion to Amend Complaint. Although Plaintiffs' counsel acknowledged the need to update the complaint, one year later, on October 17, 1994, Plaintiffs' counsel still had not done so and represented that

Plaintiffs would be amending their complaint shortly. On December 6, 1994, the USA served its Motion for Summary Judgment and Motion to Dismiss for Lack of Subject Matter Jurisdiction. Nine days later, on December 15, 1994, Plaintiffs served their Motion to File Amended Complaint. The court has now had opportunity to review the Proposed Amended Complaint and finds that it contains rambling, disjointed and unrelated allegations, some of which have no apparent factual or legal foundation and would be subject to dismissal on motion of Defendants.

As to the proposed amendments affecting the USA, Plaintiffs are attempting to circumvent the USA's Motion to Dismiss by alleging that FD Services was the USA's agent, not an independent contractor. In addition, Plaintiffs are attempting to assert a claim against the USA for spoliation of evidence, which has never been recognized under South Carolina law. Plaintiffs' attempt to amend their complaint now, after the USA has filed its dispositive motions, appears to be an eleventh hour attempt to evade a grant of summary judgment by grasping at new legal theories. Moreover, these newly developing theories are not based on newly discovered evidence or intervening facts.

Similarly, with respect to the proposed amendments affecting FD, Plaintiffs seek to assert breach of warranty and strict liability claims. Because FD was in the business of providing maintenance services to the Navy, and did not manufacture the roofing sealant, no "sale of goods" occurred sufficient to trigger the warranty provisions of the Uniform Commercial Code, S.C. Code Ann. §§ 36-2-314 and 36-2-315; Henderson v. Gould, 288 S.C. 261, 341 S.E.2d 806 (Ct. App. 1986); Computer Serv. Centers, Inc. v. Beacon Mfg. Co., 328 F. Supp. 653 (D.S.C. 1970), aff'd, 443 F.2d 906 (4th Cir. 1971) (contract for performance of data processing services not a sale of goods). Moreover, the proposed strict liability claim is equally meritless, because not a shred of evidence exists that FD injected the

product into the stream of commerce, as required, Henderson, 288 S.C. 261, 341 S.E.2d 806, or that FD is a seller "engaged in the business of selling such a product," S.C. Code Ann. § 15-73-10(1)(a). Accordingly, the proposed amendment would be subject to dismissal.

Similarly, Plaintiffs' attempt to assert a prejudgment interest claim is not cognizable in cases of unliquidated damages, Republic Textile Equipment Co. of South Carolina, Inc. v. Aetna Ins. Co., 293 S.C. 381, 360 S.E.2d 540 (Ct. App. 1987). In addition, Plaintiffs' Proposed Amended Complaint injects phrases like "carcinogenic . . properties" although there is a total absence of any evidence in the case that Stephen Goewey has cancer or an increased risk of cancer as a result of his exposure to any substance. Rather, all of Plaintiffs' theories to date have alleged neurological injury, and therefore, idle references to carcinogens and cancer appear to be utterly without foundation in the record and simply inserted for dramatic effect. In an analogous situation, the Fourth Circuit noted that the plaintiffs' motion to amend their complaint "followed on the heels" of the defendants' motion for summary judgment and appeared "to have been an afterthought by [plaintiff], possibly prompted only by the concern that it would lose on the summary judgment motion." Sandcrest, 853 F.2d at 1149. In the case at hand, the court finds that Plaintiffs' Motion to Amend Complaint should be denied based on Plaintiffs' dilatoriness and on the futility of permitting amendments that would be subject to dismissal as a matter of law. Accordingly, for these reasons, the court denies Plaintiffs' Motion to Amend Complaint.

CONCLUSION

Based on the foregoing reasons and the cited authorities, the USA's Motion to Dismiss is GRANTED; FD Services, Inc. and Fluor Daniel, Inc.'s Motion for Summary Judgment is GRANTED; Plaintiffs' Motion to Inspect Premises and To

Obtain a Tar Sample is DENIED; Plaintiffs' Motion to Amend is DENIED; all other motions are moot. The Clerk is directed to enter judgment for Defendants.

IT IS SO ORDERED.

/s/ Cameron Mcgowan Currie
CAMERON MCGOWAN CURRIE
UNITED STATES DISTRICT JUDGE

May 11, 1995

Florence, South Carolina